

MISSOURI'S BLUEPRINT TO SAVE MORE LIVES



2012-2016



Missouri's Blueprint to SAVE MORE LIVES

Friends,

Amazing results best describe Missouri's journey to save more lives and reduce serious injuries occurring on our roadways. Over the last seven years, we have experienced a reduction of 38 percent in fatalities and 35 percent in serious injuries. The newest edition of Missouri's strategic highway safety plan - Missouri's Blueprint to *SAVE MORE LIVES* outlines the next chapter in our journey.

Historically, our focus has been on meeting a fatality reduction goal. Our new goal for Missouri is set to reduce traffic fatalities to 700 by 2016. This Blueprint challenges all of us not only to focus on this goal, but also concentrate on a higher vision and move Toward Zero Roadway Deaths. Meeting this new goal and vision will require hard work and a recommitment to aggressively implement the key strategies outlined in the Blueprint.

All our safety partners play an important role and collectively we can make a positive difference. The historic four "Es" of safety: Education, Emergency Medical services, Enforcement and Engineering must be expanded to include Evaluation and EVERYONE. Measuring success by Evaluation of performance measures broadens the scope of this document and holds each of us accountable for its success. In turn, addressing the need to change traffic safety culture challenges each person to take personal responsibility for their behavior as a roadway user and includes EVERYONE.

We want to extend a special thanks to all those who played a role in the development of the Blueprint. The Blueprint Working Group spent many hours preparing the initial draft of this plan. From there, safety partners from across the state reviewed the document and submitted valuable comments. We now move from document development to strategic implementation.

Please take time to become familiar with the new Blueprint.
Together we must commit ourselves to **stop the**

*Executive Committee
Missouri Coalition for Roadway Safety*



moment of impact

MOMENT OF IMPACT

Crashes on Missouri roadways occur very suddenly, are emotional and very personal. The events surrounding each crash form a story – a story that includes the role a safety belt, guard cable, distracted driver or substance-impaired driver played during the moment of impact. Missouri's Blueprint to **SAVE MORE LIVES** is dedicated to preventing and minimizing the consequences of the moment of impact.

Standing along Missouri roadways are hundreds of small monuments that commemorate lives lost in traffic crashes. What travelers don't see is a representation of the thousands of lives saved, impacted and forever changed.

On the next pages, six poignant personal stories have been included to reflect the effect of the moment of impact – lives lost, lives changed and lives saved. Every crash tells a personal story illustrating the defense of a safety belt or guard cable and the role that a distracted or substance-impaired driver played during the moment of impact.

Missouri's Blueprint to **SAVE MORE LIVES** is dedicated to preventing and minimizing the consequences of the moment of impact.



LIVES LOST

ATTENTIVE DRIVING ALWAYS MATTERS

It was two days after Christmas 2002; the Popejoy family was looking forward to family night. Adam Popejoy, a kid who routinely checked in, was late and not answering his phone.

Lori Popejoy, Adam's mother, and her daughter drove around frantically searching for him. When they returned home, a patrol car was parked at their home.

"I just knew; it was a horrible feeling," Lori said. She started screaming and crawling on the ground unable to bear the news of losing her only son. There would be no graduation, no wedding and no grandchildren; there would always be an empty place left behind.

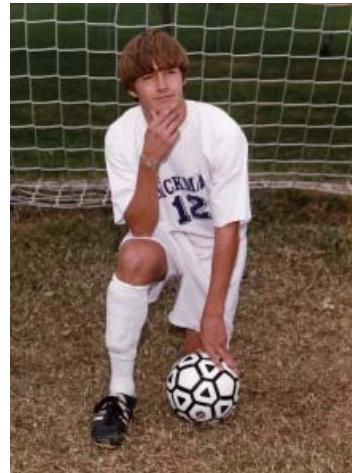
This year marks the ten-year anniversary of Adam's death. He was an honor student, athlete, artist and Boy Scout. He was 16 when he turned in front of a pick-up truck, killing himself and a friend. They were headed home, but never made it.

Another passenger, wearing her safety belt, survived. She has no memory of the moments leading up to the crash, but Lori believes distraction played a huge role.

"I just think how easy it would be to be talking with your friends and having a grand time," Lori said. "He didn't think he had to stop."

As a nurse, Lori knows that a car crash is the most likely scenario for teen death, accounting for one in three teen deaths. She now speaks on distracted driving and the impact of losing a child in a traffic crash.

"There's so much suffering with death. It doesn't get better; it gets different," Lori said. "At times, the pain is as sharp as it was ten years ago."



CHOICES, HARDSHIPS, ACTIONS, DECISIONS

Vonnie Fuqua-Mathiesen tells the story of a mother and son who were best friends, co-workers and confidantes. But it was no story; it was her life, and it had a tragic ending.

"Sometimes it's so dark I can't find the daylight again," said Vonnie. "There's always a giant hole in my life."

That giant hole was carved out in August 2008 when her only son, Chad Fuqua, 40, was killed by a drunk driver. Chad was riding his motorcycle home from a friend's house and promised to call when he arrived. But Vonnie's midnight call wasn't from Chad; it was the city police chief.

“It’s the moment in time you hope will never happen to you,” said Vonnie. “It’s the moment that changes who you are, what you’re about and how you feel about life.”

Chad was two miles from home when an impaired driver made a U-turn and drove his Hummer into Chad’s motorcycle. Chad was thrown from his motorcycle and died a short time later.

“It didn’t have to happen; it just didn’t,” said Vonnie. “If there’s one thing I can say to anybody, it would be to look at their choices and not drive drunk.”



LIVES CHANGED

THE PARTY’S OVER

Madison Cannon was halfway through her senior year, working two jobs and living it up on the weekends. But in November 2009, a night of partying had life-altering consequences.

Madison passed out in a friend’s car, without her safety belt on. Her friend, also drunk, attempted to drive home from a party when she lost control of the car and smashed into a tree. The wreck broke Madison’s neck and punctured her spinal cord, leaving her a quadriplegic.

“When you’re young and able, you don’t think this kind of thing will happen to you because I never thought in a million years this would happen to me,” said Madison.

“Not a single drink I took that night was worth what happened,” she added. “I went from being independent and having any opportunity in the world to being stuck in a wheelchair.”

Madison shares her story with young drivers and encourages them to make smart decisions behind the wheel.

“Just put on your seat belt, and don’t drink and drive. It’s so stupid.”



ONE STEP FROM GRADUATION

Just one day before high school graduation, Antoinne Jones, made a choice that prevented him from walking across the stage to accept his diploma – or walking ever again.

Antoinne and his fellow classmates had just finished graduation rehearsal and were racing to the senior picnic. Antoinne, speeding and not wearing his safety belt, hit a pothole, lost control of his car and crashed into a tree.

“My mom told me to wear my seat belt and slow down all the time, but I had a heavy foot and thought I was invincible,” Antoinne said. “I didn’t think there would be consequences to my actions.”

The impact from the crash broke Antoinne’s neck. He was rushed to the hospital where doctors told Antoinne and his family he had a spinal cord injury and would never walk again.

“At 18, I had a plan for my life,” Antoinne added. “In one moment, it all went away.”



LIVES SAVED

CHILDHOOD SONG CREATES A SAVING HABIT

As a parent, you hope the lessons you instill in your children will carry them through life. For Shelby Ingraham, that lesson came in a childhood song called “Buckle Up for Safety.”

“It’s ingrained in my head,” Shelby said. “I would flip out if the car moved without everyone being buckled up.”

After work on a snowy February day in 2011, Shelby was merging onto the highway when she hit a slick spot, lost control of her car and fishtailed across the highway. A SUV slammed into the side of Shelby’s car. She remembers the moment clearly.

“It was eerily calm in my head like an out-of-body experience,” she said. “When the SUV was about to hit me, it cast a shadow on my window and I closed my eyes.”

After the impact, Shelby’s car flipped three times until it was stopped by median guard cable. Her car was totaled, but Shelby suffered only minor injuries.

Shelby later learned that first responders told the hospital to expect a body; but she was one of the lucky ones because she was wearing her safety belt, a habit she credits to a “silly song.”



HANGING BY A BUCKLE

Heidi Turner, 20, survived what could have been a deadly car crash. On a rainy, overcast October morning, Heidi, was on her way to work when her car hydroplaned.

"I lost control of my car, hit a large metal fence and post and my car flipped a couple of times," Heidi said.

The car came to rest on its top. Heidi was left hanging upside down, held in by her safety belt, and she admits, very scared.



"My car rolled two times and everything came out of it but me," she said. Her purse and backpack flew out the car window and landed a few feet away. "If I hadn't been wearing my seat belt, I would have flown out too."

Heidi remained in the car and was able to undo her safety belt and crawl out the window. She walked away with only a mild concussion, cuts and bruises.

Heidi is now much more cautious behind the wheel and will never forget to buckle up. Without her safety belt, she may not have survived to tell her story.

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LOOKING BACK

In 2004, a partnership of Missouri safety advocates, including law enforcement agencies, health care providers, courts, local, state and federal government agencies, advocacy groups, planning organizations, concerned citizens and others banded together to form the Missouri Coalition for Roadway Safety (MCRS). This group worked with regional safety coalitions to implement the first strategic highway safety plan titled *Missouri's Blueprint for Safer Roadways*. The four-year plan was updated in 2008 and named *Missouri's Blueprint to ARRIVE ALIVE*. Both plans established a fatality reduction goal and provided a comprehensive framework to reduce roadway fatalities and serious injuries. Throughout the seven-year effort, safety partners statewide mobilized to implement key strategies. They employed eight guiding principles during the development and implementation process of these Blueprint documents:

- Focus on fatalities and serious injuries
- Consider education, enforcement, emergency response, engineering and public policy strategies
- Collaborate with all safety partners
- Use evidence-based strategies
- Support system-wide safety enhancements
- Implement countermeasures at both state and regional levels
- Monitor and evaluate progress
- Apply to all roadways

A major benefit of the strategic planning effort was combining the strengths and resources of our safety partners. This collaborative and comprehensive approach resulted in programs and strategies that reduced roadway fatalities and serious injuries. Other key benefits included:

- Collective focus on statewide safety goals
- Enhanced value of safety coalitions
- Expanded data, knowledge and resource sharing
- Minimized duplication of effort
- Strengthened existing partnerships
- Leveraging of limited resources toward a common vision and goal
- More effective coordination of safety partner initiatives
- Incorporation of behavioral, engineering, enforcement and emergency response strategies into a comprehensive approach to improve roadway safety
- Quantified success through performance measures
- Deployment of safety countermeasures and crash data analysis

OUR RESULTS

GOALS MET

Each version of the Blueprint established a specific fatality reduction goal. The 2004 goal – to reduce fatalities to 1,000 or fewer by 2008 – was met one year early. The second edition of the Blueprint called for 850 or fewer fatalities by 2012. That goal was met two years early in 2010, when Missouri's traffic fatalities stood at 821.

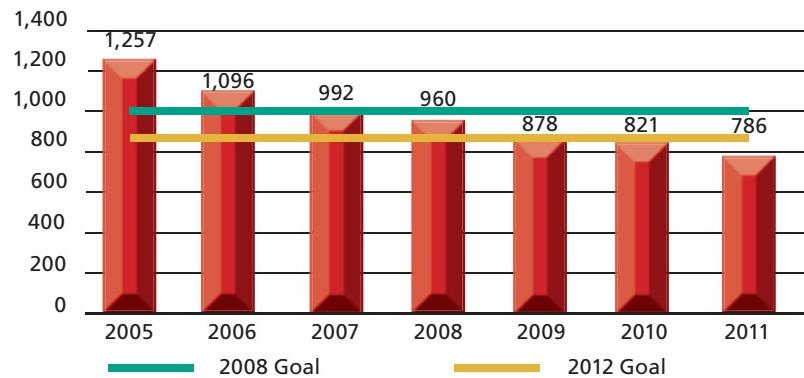
Between 2005 and 2011, Missouri's annual traffic fatalities fell from 1,257 to 786. In fact, in 2011 Missouri experienced the lowest number of traffic crash fatalities since 1947. This remarkable decrease is due in part to aggressive implementation of both strategic highway safety plans.

LIVES SAVED

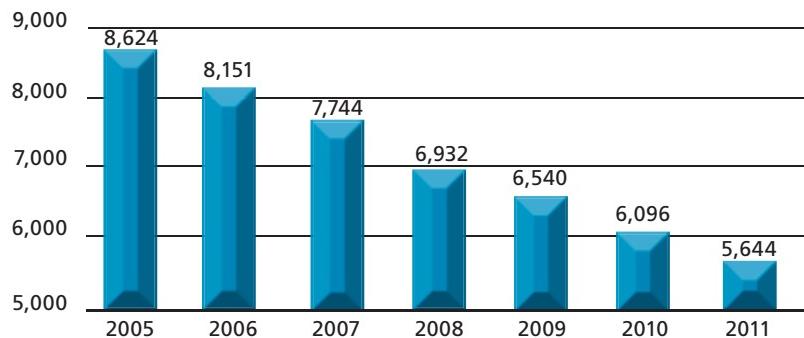
Strategies implemented since 2005 contributed to six consecutive annual decreases in traffic crash fatalities and serious injuries. Between 2005 and 2011, Missouri experienced a 38 percent fatality reduction, resulting in a total of 2,009 lives saved. The fatality rate fell from 1.8 fatalities per 100 million vehicle miles of travel in 2005 to 1.14 in 2011. The charts below show the progressive decline in both fatalities and serious injuries since 2005.

Significant investments were made in strategies designed to reduce fatalities in specific crash areas. The chart on page 9 shows the eight most frequently cited crash factors during the past seven years. The final column reports the percentage change in fatalities per crash type between 2005 and 2011.

2005-2011 Missouri Traffic Crash Fatalities



2005-2011 Missouri Traffic Crash Serious Injuries



Fatality Reduction Since 2005 for Most Frequent Crash Areas

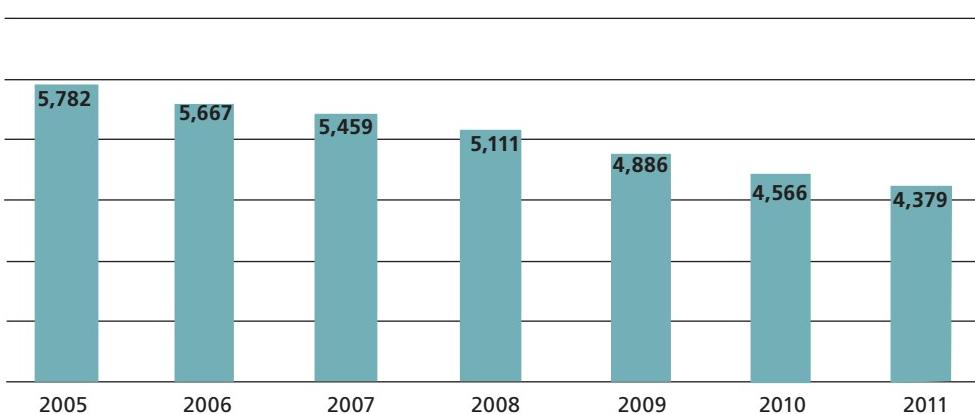
Fatalities Involving	2005	2006	2007	2008	2009	2010	2011	7-Year Total	% Fatality Reduction 2005 vs 2011
Unrestrained Occupants	621	576	478	489	425	392	380	3,361	39% ↓
Run-Off-Road Crashes	594	494	447	460	398	395	398	3,186	33% ↓
Aggressive Drivers	521	461	416	432	370	339	310	2,849	40% ↓
Horizontal Curves	427	375	350	332	293	262	270	2,309	37% ↓
Substance-Impaired Drivers	269	261	241	271	264	229	221	1,756	18% ↓
Distracted Drivers	273	236	224	207	155	182	161	1,438	41% ↓
Young Drivers (15-20)	267	253	183	195	156	119	151	1,324	43% ↓
Intersection Crashes	168	197	165	160	150	165	113	1,118	30% ↓

Since 2005, it is estimated that Missouri's economic loss associated with traffic crashes was more than \$23 billion. As roadway crashes declined from 175,148 in 2005 to 149,972 in 2011, a 14 percent reduction in economic loss was achieved.

IMPACT ON TRAUMA CENTERS

The chart below displays the number of patients discharged from Missouri's 29 trauma hospitals for injuries caused by roadway crashes between 2005 and 2011. The number of discharges assigned a cause-of-injury insurance code corresponding to motor vehicle crashes fell by 24 percent. The downward trend is significant according to a test of the slope.

Number of Motor Vehicle Roadway Crash Occupants Discharged from Trauma Hospitals 2005-2011



Note: The discharges noted were drawn from diagnostic code information that indicated a principal diagnosis of injury with a cause-of-injury found in the motor vehicle traffic range. (External cause-of-injury codes E810-E819.)

MOVING FORWARD

Missouri's Blueprint to SAVE MORE LIVES provides overall guidance and direction to the many public agencies and community organizations concerned with improving roadway safety. The Blueprint for 2012 to 2016 includes six emphasis areas, 25 focus areas and renews a call for action to mobilize and implement key strategies on the state, county and local levels.

By implementing the Blueprint, the MCRS seeks to engage planning partners, community and advocacy groups, law enforcement, emergency response personnel, state and local government agencies, engineers, educators and the public to make Missouri's roadways safer. Continued success in saving more lives and reducing serious injuries requires a focused, coordinated and sustained effort from all safety partners.

OUR VISION

The ultimate vision for Missouri is Show-Me Zero Roadway-Related Deaths. The Swedish Vision Zero partners expressed it best, "it is immoral not to do everything possible to prevent road deaths and injuries."

The National Framework on Highway Safety calls for each state to embrace and support the Toward Zero Deaths (TZD) vision. What will it take to move Missouri toward this vision – ZERO DEATHS?



NEW FATALITY GOAL

Two goals set since 2004 were met early: 1,000 or fewer fatalities by 2008 (met in 2007); and 850 or fewer fatalities by 2012 (met in 2010). The goals motivated Missouri and provided a gauge of success in the implementation of strategic plans. As Missouri moves toward zero deaths, it is imperative to set another fatality goal. The new fatality goal is:

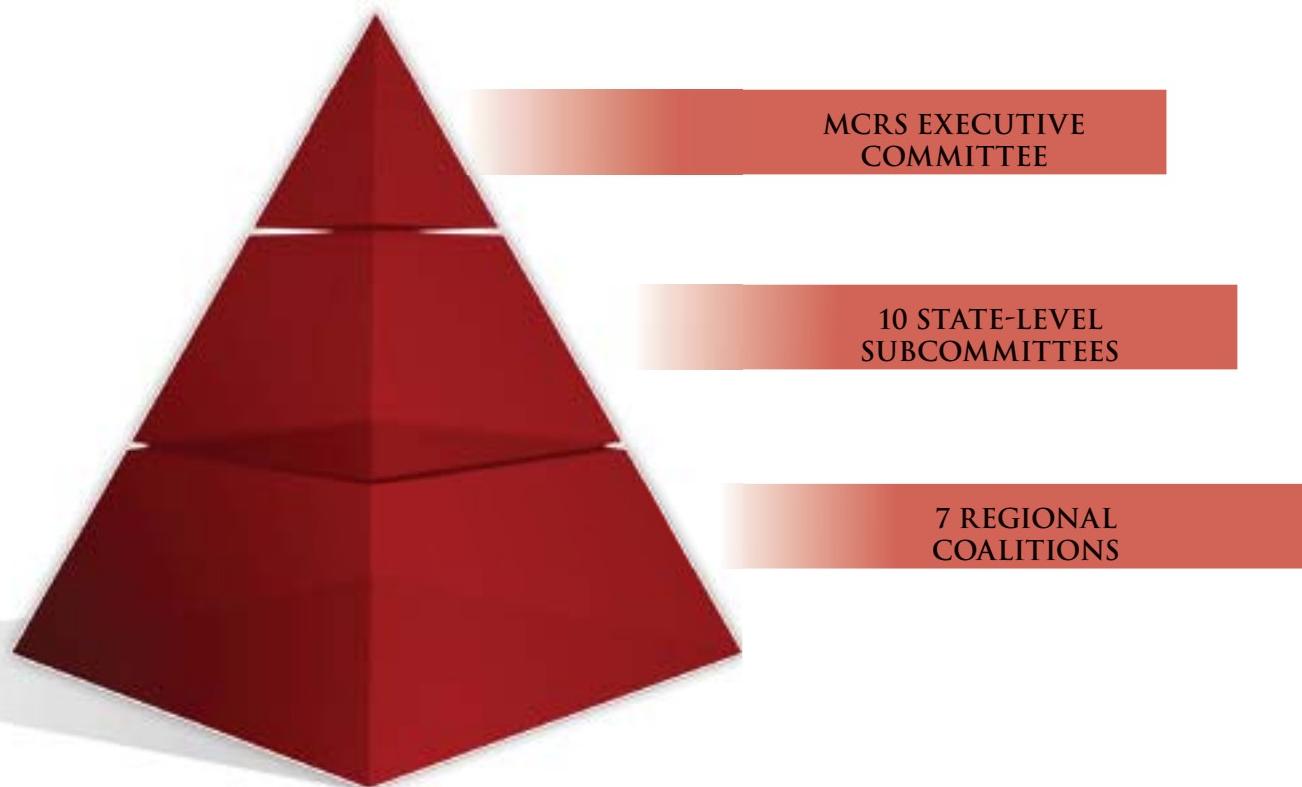
700 OR FEWER FATALITIES BY 2016

REENERGIZED COALITION

The foundation of our implementation strategy is the Missouri Coalition for Roadway Safety. The MCRS is organized into three parts: executive committee, 10 state-level sub-committees and seven regional coalitions. Those who serve on these committees and coalitions are safety champions. They are the heartbeat of the effort and work diligently to mobilize people statewide to address roadway safety issues. Maintaining members' viability, enhancing their effectiveness and using limited resources efficiently is instrumental to reaching our new fatality goal.

Each of the regional coalitions will develop a strategic plan based on this Blueprint and the crash data relevant to their area. Regional coalitions are encouraged to utilize an evidence-based process that directs resources towards emphasis and focus areas identified in the Blueprint.

OUR ACTION TEAM



REGIONAL COALITIONS

This map depicts the seven Regional Coalitions. For more information about the Coalitions and their regional contacts, visit the SAVEMOLIVES.com website



EXPAND AND STRENGTHEN PARTNERSHIPS

Partnership is the driving force behind the success of highway safety efforts. Representatives from law enforcement, education, engineering, emergency response, justice system, planning agencies, advocacy groups, businesses and government agencies are needed to successfully implement the diverse set of strategies. Building new partnerships while strengthening and expanding current ties, is essential to advance the Blueprint initiative.

USE RESOURCES EFFICIENTLY

Resources for supporting key strategies are limited. As a result, time and money must be carefully prioritized to maximize the effort in reducing roadway fatalities and serious injuries on the state and local roadway systems.

COORDINATE MULTIDISCIPLINARY INITIATIVES

Coordination and frequent communication between the multidisciplinary partners are necessary to minimize duplication of effort, ensure the success of the implementation process and help maintain focus on the

mission, fatality reduction goal and vision - Toward Zero Deaths.

TARGET HIGH-RISK POPULATIONS

Research results clearly show certain segments of the population are overrepresented in roadway crashes. Teens, substance-impaired drivers, unrestrained occupants, aggressive drivers and distracted drivers are of particular concern. Strategies directed at these high-risk groups must be implemented to save more lives.

CHANGE TRAFFIC SAFETY CULTURE

An accelerated fatality reduction goal requires strategies that create positive change in the roadway safety culture. Is it acceptable that between 2005 and 2011 in Missouri 6,790 people died needlessly because of roadway crashes? To what extent is the population both politically and personally willing to elevate the value of roadway safety? Can Missouri's culture be changed so individuals stop saying "do as I say, not as I do" and take personal responsibility for high-risk behaviors?



OUR FUTURE SUCCESS

The success of the Blueprint will be measured by whether the fatality goal is met and if it continues to serve as a sound platform for future roadway safety gains. These achievements will take a concentrated effort by all safety partners including policy makers and all roadway users.

Historically, the roadway safety strategies outlined in the Blueprint focused on four 'Es' – Education, Enforcement, Engineering and Emergency Medical Services. This Blueprint expands the four 'Es' to six, adding Evaluation and Everyone. EVERYONE plays an important role in helping move the state Toward Zero Deaths.

The MCRS Executive Committee will monitor the delivery of this strategic plan. The committee must provide the leadership which is critical for building alliances needed to attack this problem and motivate safety partners into action.

The MCRS vision can only be achieved through responsible individual and community actions. Ultimately, safety is a shared responsibility.

BLUEPRINT OVERVIEW

The Blueprint is divided into three zones. A brief description of each is below:

Strategy Zone

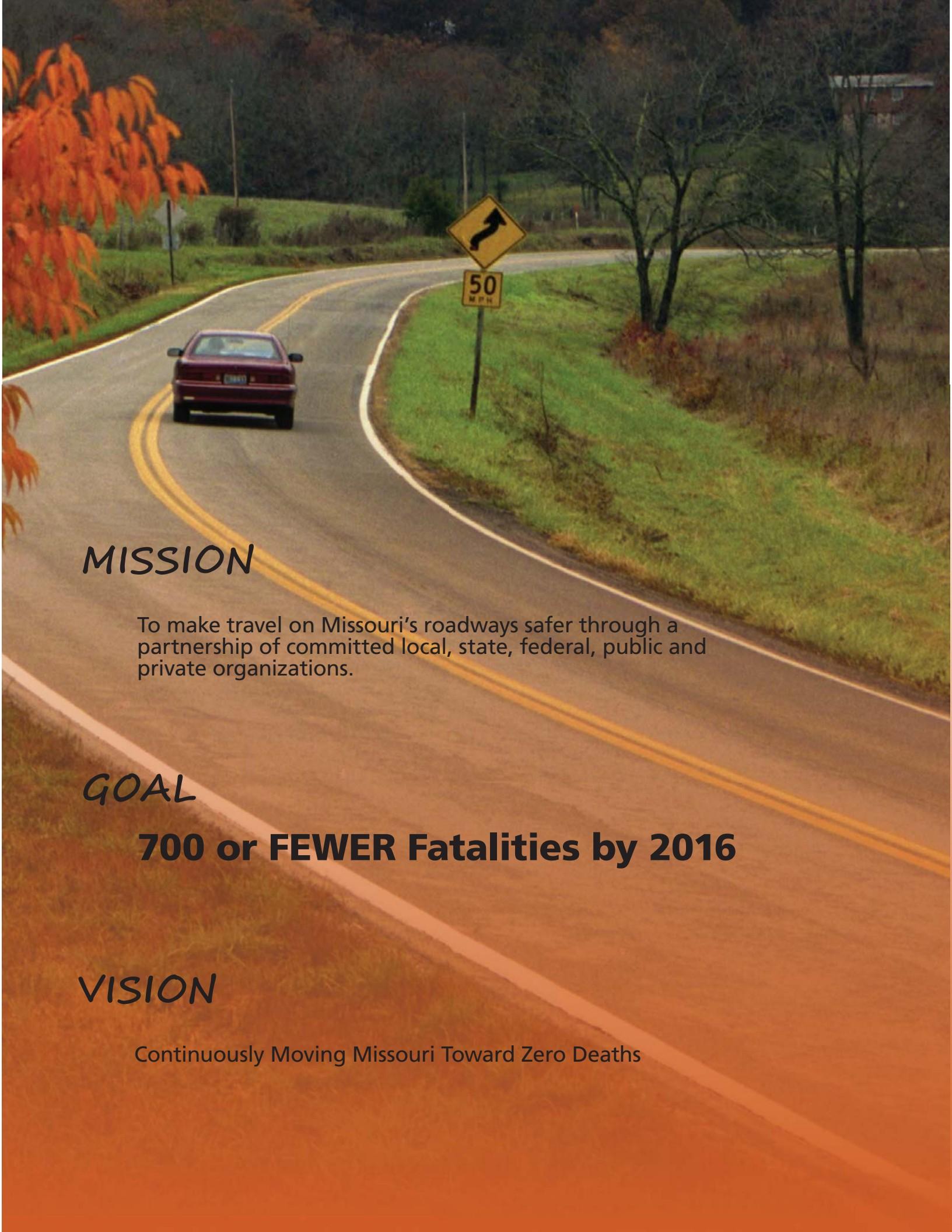
Addresses six emphasis and 25 focus areas with corresponding key strategies designed to further reduce roadway fatalities and serious injuries. Following the key strategies is a list of related performance measures.

Performance Zone

Lists each focus area's performance measures and displays the corresponding data charts from 2005 to 2011.

Data Zone

Includes a series of appendices displaying fatalities and serious injuries by focus area, Missouri State Highway Patrol Troop, age, maps and additional resources.

A photograph of a two-lane asphalt road curving through a rural area. On the left, there's a large tree with vibrant orange and red autumn leaves. A yellow diamond-shaped road sign indicates a sharp curve ahead. Below it, a smaller rectangular sign shows the number '50' with 'MPH' underneath, indicating the speed limit. The road has double yellow lines. The surrounding terrain is green grass and some bare trees, suggesting a transition between seasons.

MISSION

To make travel on Missouri's roadways safer through a partnership of committed local, state, federal, public and private organizations.

GOAL

700 or FEWER Fatalities by 2016

VISION

Continuously Moving Missouri Toward Zero Deaths

THE NECESSARY NINE

N9

Historically, the Blueprint has identified a few strategies having the greatest potential to save more lives and reduce serious injuries. These strategies were called the Essential Eight in 2004, Targeted Ten in 2008 and now in 2012, the Necessary Nine. Aggressive implementation of the Necessary Nine represents the greatest opportunity to save more lives. By passing a primary safety belt law, the National Highway Traffic Safety Administration estimates that 63 additional lives would be saved each year. Expanding the number of miles of shoulders with rumble stripes, as well as the number of curves with safety improvements, should also lead to more lives being saved.

N9

Increase Safety Belt Use

- Pass a primary safety belt law
- Increase the number of local communities with primary safety belt ordinances
- Increase the fine for non-use of a safety belt under the current law

N9

Expand the Installation of Rumble Strips/Stripes

- Increase the number of miles of edgeline and centerline rumble strips/stripes

N9

Increase Efforts to Reduce the Number of Substance-Impaired Vehicle Drivers and Motorcycle Operators

- Increase the number of sobriety checkpoints
- Expand the use of ignition interlocks
- Increase the number of DWI courts

N9

Improve Intersection Safety

- Increase the use of Innovative Intersection Solutions (J-turns, Roundabouts)
- Expand the use of technology
- Increase targeted enforcement
- Increase pedestrian safety features

N9

Improve Curve Safety

- Increase the use of curve alignment signs
- Increase curve recognition with pavement marking
- Increase pavement friction

N9

Change Traffic Safety Culture

- Develop focused public education
- Expand outreach efforts

N9

Improve Roadway Shoulders

- Increase the miles of shoulders
- Reduce pavement edge drop-offs through maintenance

N9

Increase Enforcement Efforts

- Focus on high-crash corridors
- Target high-impact work zones

N9

Expand and Improve Roadway Visibility

- Ensure all roadway signs meet acceptable retroreflectivity
- Expand the use of delineation
- Expand the use of centerlines and edgelines and ensure the markings meet acceptable retroreflectivity

STRATEGY ZONE

STRATEGY ZONE

This portion of the Blueprint discusses the six emphasis and 25 focus areas with their corresponding strategies and performance measures. Each of the six emphasis areas has a chart that lists the fatalities and serious injuries by focus area in descending order from the largest number of total fatalities plus serious injuries to the smallest.

The strategies are divided into six categories: education, emergency response, enforcement, engineering, technology and public policy/other. These categories help the various safety partners quickly identify key strategies they can implement per their area of expertise.

Following the focus area's strategies is a list of related performance measures. These performance measures describe the safety partner's work and the results of that work.

EMPHASIS AND FOCUS AREAS

This Blueprint addresses six emphasis and 25 focus areas. Only key strategies that provide the greatest likelihood of reducing roadway-related fatalities and serious injuries are included. Extensive data analysis and review of current research were used as a basis for strategy selection.

Resource documents that contain additional strategies are listed in Appendix E.

Emphasis Area I / Serious Crash Types

Focus Areas

- o Run-Off-Road Crashes
- o Horizontal Curves Crashes
- o Intersection Crashes
- o Collisions with Trees or Utility Poles
- o Head-On Crashes

Emphasis Area II / High-Risk Drivers and Unrestrained Occupants

Focus Areas

- o Aggressive Drivers
- o Unrestrained Drivers and Occupants
- o Distracted and Drowsy Drivers
- o Young Drivers (15 through 20 years of age)
- o Substance-Impaired Drivers
- o Unlicensed, Revoked or Suspended Drivers

Emphasis Area III / Special Vehicles

Focus Areas

- o Commercial Motor Vehicles
- o All-Terrain Vehicles (ATVs)
- o School Buses/School Bus Signals

Emphasis Area IV / Vulnerable Roadway Users

Focus Areas

- o Older Drivers (65 years of age or older)
- o Motorcyclists
- o Pedestrians
- o Bicyclists

Emphasis Area V / Special Roadway Environments

Focus Areas

- o Nighttime Driving
- o Work Zones
- o Highway / Rail Crossings
- o Traffic Incident Management Areas

Emphasis Area VI / Data and Data System Improvements

Focus Areas

- o Data Collection
- o Data Accessibility
- o System Linkage

EMPHASIS AREAS, FOCUS AREAS AND KEY STRATEGIES

In this section of the Blueprint, the emphasis areas and their corresponding focus areas and key strategies are discussed. Fatal and serious injury crash data (2009 through 2011) are provided for each focus area. Each focus area begins with a description of the problem followed by a list of key strategies in the education, emergency response, enforcement, engineering, technology and public policy/other categories. Performance measures designed to monitor the progress of the Blueprint are identified for each focus area.



EMPHASIS AREA 1 / SERIOUS CRASH TYPES

Aggressive annual data analysis identified the most serious crash types. Based on this analysis, five focus areas are of particular concern:

- Run-Off-Road Crashes
- Horizontal Curve Crashes
- Intersection Crashes (Signalized and Unsignalized)
- Collisions with Trees or Utility Poles
- Head-On Crashes

The table below depicts a three-year total of fatalities and serious injuries by serious crash type. Run-off-road and horizontal curve crashes cause the most fatalities and severe injuries of these crash types.

Crashes can involve more than one factor (e.g. horizontal curve, run-off-road, collision with tree); therefore, adding these numbers together will represent more than the total number of fatalities and serious injuries.

Fatalities and Serious Injuries by Crash Type 2009-2011

Crash Type	Fatalities				Serious Injuries				Total
	2009	2010	2011	Subtotal	2009	2010	2011	Subtotal	
Run-Off-Road	398	395	398	1,191	2,692	2,543	2,312	7,547	8,738
Horizontal Curves	293	262	270	825	1,783	1,636	1,521	4,940	5,765
Intersection (Signalized and Unsignalized)	150	165	113	428	1,926	1,747	1,642	5,315	5,743
Collisions with Trees or Utility Poles	162	145	162	469	911	772	696	2,379	2,848
Head-On	140	106	121	367	582	478	487	1,547	1,914

Run-Off-Road Crashes

The Problem

In Missouri, 47.9 percent of the fatalities and 41.3 percent of the serious injuries in the past three years were attributed to vehicles leaving the roadway. Two-lane rural roads were the site of 39.3 percent of the state's run-off-road fatalities and serious injuries. When vehicles leave the roadway, the roadway environment, including slopes, edge drop-offs and fixed objects, impact crash severity. The purpose of these strategies is to keep vehicles in their driving lane, provide an opportunity for the driver to recover from run-off-road incidents in order to prevent crashes or reduce the severity of those that do occur.

Run-Off-Road Crashes

	2009	2010	2011	Total
Fatal Crashes*	371	380	368	1,119
Serious Injury Crashes*	2,223	2,103	1,913	6,239
Fatalities	398	395	398	1,191
Serious Injuries	2,692	2,543	2,312	7,547

*Run-Off-Road crashes are categorized in relation to the roadway at the time of the first harmful event.

Key Strategies

Education

- Educate roadway users about the dangers of distracted driving
- Train and educate roadway users how to safely recover after leaving the roadway
- Use media to educate roadway users on the potential outcomes of roadway-departure crashes
- Educate roadway users on dangers of using cruise control during wet conditions
- Educate roadway users about new vehicle technologies that help drivers stay in the driving lane

Emergency Response

- Develop a plan to expand the awareness and use of In Case of Emergency (ICE) to encourage people to enter emergency contact information in their mobile phone
- Improve emergency response time through better planning and communication

Enforcement

- Use enforcement to reduce aggressive and distracted driving
- Increase targeted enforcement on high-incident corridors

Engineering

- Install center and edgeline rumble strips/stripes
- Add and improve shoulders
- Eliminate edge drop-offs
- Install Safety EdgeSM
- Expand and maintain roadway visibility features (brighter stripes and delineation)
- Remove, shield, and /or delineate roadside obstacles when possible

Technology

- Deploy in-vehicle edgeline and lane proximity warning devices
- Link cell phone and vehicle systems to minimize texting while driving

Public Policy / Other

- Enact legislation to restrict texting for all drivers

Performance Measures

Number of fatalities and serious injuries resulting from run-off-road crashes

Number of fatal and serious injury run-off-road crashes

Number of edge and centerline miles of rumble strips/stripes

Number of miles of added shoulders

Number of miles of Safety EdgeSM

Horizontal Curve Crashes

The Problem

A driver is three times more likely to be involved in a crash on a horizontal curve than on a straight stretch of roadway. In Missouri, 33.2 percent of all fatalities and 27 percent of all serious injuries during the past three years occurred along horizontal curves. Single vehicles accounted for 62.2 percent of the fatal and serious injuries due to crashes on horizontal curves. These vehicles left the roadway and struck fixed objects or overturned.

Horizontal Curve Crashes

	2009	2010	2011	Total
Fatal Crashes	263	253	242	758
Serious Injury Crashes	1,388	1,268	1,197	3,853
Fatalities	293	262	270	825
Serious Injuries	1,783	1,636	1,521	4,940

Key Strategies

Education

- Train and educate roadway users to properly negotiate curves
- Use media to educate roadway users about potential dangers in curves
- Educate roadway users about the dangers of using cruise control when negotiating curves

Emergency Response

- Develop a plan to expand the awareness and use of In Case of Emergency (ICE) to encourage people to enter emergency contact information in their mobile phone
- Improve emergency response time through better planning and communication

Enforcement

- Increase targeted enforcement on high-incident corridors

Engineering

- Install center and edgeline rumble strips/stripes
- Install transverse rumble strips
- Upgrade and improve shoulder treatments (pave shoulders and eliminate edge drop-offs)
- Expand and maintain roadway visibility features (e.g. curve signs and pavement markings such as optical speed bars)

Increase pavement friction

- Increase roadway lighting
- Install in-pavement illumination

Shield or remove fixed objects when possible

Technology

- Install sequential blinking chevrons
- Add interactive advance-speed-warning signs
- Install sensors to detect vehicle height and warning signs where overhead obstructions exist
- Deploy in-vehicle edgeline and lane proximity warning devices
- Link cell phone and vehicle systems to minimize texting while driving

Public Policy / Other

- Enact legislation to restrict texting for all drivers

Performance Measures

Number of fatalities and serious injuries resulting from horizontal curve crashes

Number of fatal and serious injury crashes involving horizontal curves



Intersection Crashes

Signalized and Unsignalized Intersections

The Problem

In Missouri, intersection crashes accounted for 17.2 percent of the fatalities and 29.1 percent of the serious injuries during the last three years. Severe crashes at signalized intersections usually are a result of non-compliance with the traffic signal. Severe crashes at intersections that do not have signals occur when one or more of the vehicles are traveling at a high rate of speed upon impact. Potential causes of crashes may be distraction, sight distance issues, poor visibility and gap judgment, excessive speed and non-compliance with traffic control devices. Low-cost safety improvements can help improve intersection safety. In areas of new construction or major reconstruction, innovative engineering designs should be considered.

Intersection Crashes

Signalized and Unsignalized Intersections

	2009	2010	2011	Total
Fatal Crashes	130	152	107	389
Serious Injury Crashes	1,393	1,261	1,232	3,886
Fatalities	150	165	113	428
Serious Injuries	1,926	1,747	1,642	5,315

Key Strategies

Education

- Educate roadway users on intersection traffic controls (e.g. flashing yellow arrow)
- Educate roadway users on innovative intersection designs (e.g. J-turns, roundabouts, etc.)
- Educate drivers on navigating through signalized intersections which are flashing or dark due to a power outage

Emergency Response

- As appropriate, install emergency vehicle signals

Enforcement

- Increase enforcement of intersection violations (red-light running, regulatory signs, u-turns)
- Support targeted enforcement on high-incident corridors
- Use enforcement to reduce aggressive and distracted driving

Engineering

- Improve intersection awareness
 - Install stop-approach transverse rumble strips
 - Improve sight distance
 - Install dynamic flashing beacons
 - Improve signage and intersection visibility (i.e. doubling of signs, larger signs, use delineators at intersections)
 - Install or enhance intersection lighting
 - Use retroreflective backplates for signal heads where appropriate
 - Use 12 inch LED signal indications with back-plates
 - Install additional signal indicators where sight distance of signal heads may be a concern
- Implement innovative engineering designs
 - Install roundabouts
 - Install J-turns
 - Consider Diverging Diamond Interchanges
 - Consider Continuous Flow Intersection designs
 - Construct offset turn lanes
 - Use traffic calming strategies (narrowing lanes, etc.)
 - Consider pedestrian crossing islands
- Modify signal phasing and timing
 - Protect left-turn movements
 - Provide adequate clearance times (Using Institute of Transportation Engineers guidelines)
 - Provide dilemma zone protection
 - Provide flashing yellow arrows for permissive left-turn movements
 - Eliminate late-night all direction flash at signalized intersections
- Install confirmation lights to assist officers in enforcing red-light violations
- Remove unwarranted signals
- Use proper planning and design of access to public roadways
- Increase pavement friction
- Install battery backup systems

Technology

- Use intersection collision warning system
- Assist drivers with red signal recognition using advance notification
- Use advance or dynamic dilemma zone detection
- Use detectors that predict a red-light violation and holds signal in all-red state

Public Policy / Other

- Monitor the use of automated enforcement and encourage best practices
- Enact legislation to restrict texting for all drivers

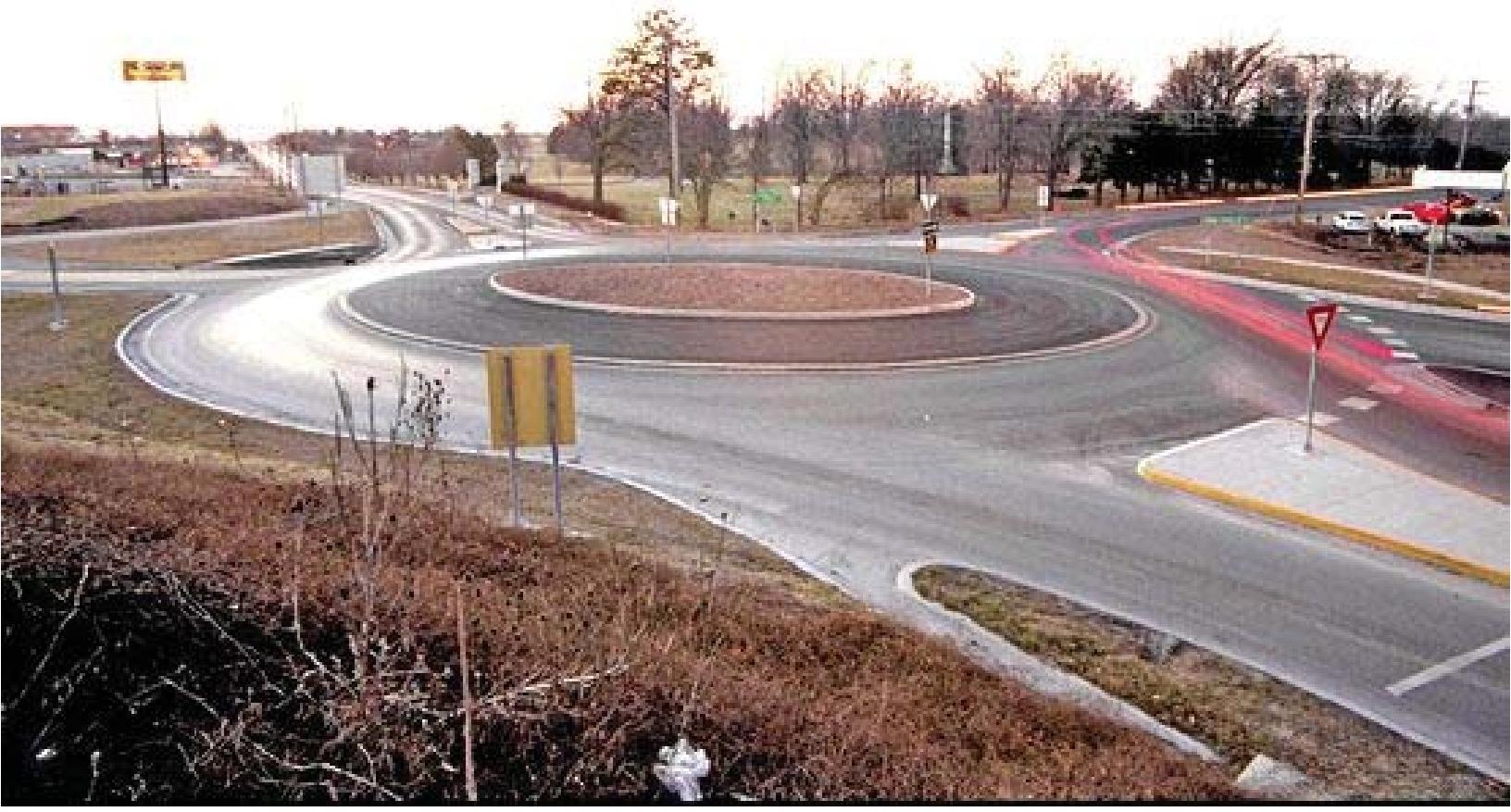
Performance Measures

Number of fatalities and serious injuries resulting from intersection crashes (signalized and unsignalized)

Number of fatal and serious injury crashes at intersections (signalized and unsignalized)

Number of innovative intersection improvements (roundabouts, J-turns, Diverging Diamond)

Number of automated enforcement intersection installations





Collisions with Trees or Utility Poles

The Problem

When vehicles leave the roadway, they often strike an object. Two of the objects struck most frequently are trees and utility poles. Collisions involving a tree or utility pole accounted for 18.9 percent of fatalities and 13 percent of serious injuries during the last three years. The strategies listed below reduce the chance of an errant vehicle impacting a tree or utility pole or mitigate crash severity.

Collisions with Trees or Utility Poles

	2009	2010	2011	Total
Fatal Crashes	157	146	151	454
Serious Injury Crashes	754	632	592	1,978
Fatalities*	162	145	162	469
Serious Injuries*	911	772	696	2,379

*Fatalities and serious injuries are only those people killed or seriously injured when colliding with trees or utility poles.

Technology

- Use in-vehicle edgeline and lane proximity warning devices

Public Policy / Other

- Encourage companies to bury utilities
- Encourage property owners to remove trees near right-of-way

Performance Measures

Number of fatalities and serious injuries resulting from crashes involving trees or utility poles

Number of fatal and serious injury crashes involving trees or utility poles

Key Strategies

Education

- Increase roadway users knowledge of in-vehicle edgeline and lane proximity warning devices
- Promote "right tree right place" practices

Emergency Response

- Improve emergency response time through better planning and communication

Engineering

- Remove trees from the right-of-way that could be struck by an errant vehicle
- Relocate utility poles, provide underground utilities or install breakaway structures
- Shield motorists from trees, utility poles or other fixed objects as suitable
- Provide adequate clear zones (consider clearing or shielding fixed objects beyond clear zones)
- Provide utility pole delineation (e.g. reflectors) when relocation is not an option

Head-On Crashes

The Problem

Head-on crashes accounted for 14.8 percent of Missouri's fatalities and 8.5 percent of the serious injuries during the last three years. These crashes occur when a vehicle leaves its driving lane and crosses over into oncoming traffic, exposing people in the opposing lane to a head-on crash. The strategies listed below are designed to keep vehicles in their driving lanes and prevent head-on crashes.

Head-On Crashes

	2009	2010	2011	Total
Fatal Crashes	109	91	103	303
Serious Injury Crashes	322	275	297	894
Fatalities	140	106	121	367
Serious Injuries	582	478	487	1,547

Key Strategies

Education

- Educate roadway users on passing lanes and no-passing zone markings
- Educate roadway users on the function of "shared 4-lane" facilities
- Educate drivers on proper headlight dimming principles
- Educate roadway users on the dangers of using cruise control during wet conditions
- Increase roadway users knowledge of in-vehicle edgeline and lane proximity warning devices

Emergency Response

- Improve emergency response time through better planning and communication

Enforcement

- Strictly enforce vehicle passing regulations
- Use enforcement to reduce aggressive and distracted driving behaviors
- Increase targeted enforcement on high-incident corridors

Engineering

- Install centerline rumble stripes
- Install median guard cable or equivalent barrier
- Install, as appropriate, "No Passing Zone" signs
- Construct shared 4-lane roadways in place of rural two-lane roads
- Use pavement markings to establish appropriate no passing zones

Technology

- Automatic headlight dimming
- Use blinking wrong-way signs and driver notification on dynamic message signs to address wrong-way drivers
- Deploy in-vehicle forward warning systems

Public Policy / Other

- Amend RSMo 304.016 to make crossing a solid double yellow center stripe when passing a traffic violation
- Enact legislation to restrict texting for all drivers

Performance Measures

Number of fatalities and serious injuries resulting from head-on crashes

Number of fatal and serious injury head-on crashes

Number of fatal and serious injury head-on / wrong-way crashes by roadway type (interstate, expressway, two-lane)



EMPHASIS AREA II / HIGH-RISK DRIVERS AND UNRESTRAINED OCCUPANTS

Extensive data analysis identified several types of high-risk drivers and unrestrained occupants. Six focus areas are included in this section:

- Aggressive Drivers
- Unrestrained Drivers and Occupants
- Distracted and Drowsy Drivers
- Young Drivers (15 through 20 years of age)
- Substance-Impaired Drivers
- Unlicensed, Revoked or Suspended Drivers

The table below illustrates a three-year total for fatalities and serious injuries resulting from crashes involving high-risk drivers and unrestrained occupants. Crashes can involve more than one risk factor (e.g. speeding and substance-impairment); therefore, adding these numbers together will represent more than the total number of fatalities and serious injuries.

Fatalities and Serious Injuries by High-Risk Drivers and Unrestrained Occupants 2009- 2011

Crash Type	Fatalities				Serious Injuries				Total
	2009	2010	2011	Subtotal	2009	2010	2011	Subtotal	
Aggressive Drivers Involved*	370	339	310	1,019	2,337	2,237	1,971	6,545	7,564
Unrestrained Occupants	425	392	380	1,197	1,703	1,598	1,451	4,752	5,949
Distracted Drivers Involved	155	182	161	498	1,590	1,428	1,327	4,345	4,843
Young Drivers Involved (15-20 years of age)	156	119	151	426	1,646	1,444	1,252	4,342	4,768
Substance-Impaired Drivers Involved	264	229	221	714	1,103	926	900	2,929	3,643
Unlicensed, Revoked, or Suspended Drivers Involved	123	120	135	378	756	686	594	2,036	2,414

*Includes speeding, driving too fast for conditions and following too close.

Aggressive Drivers

The Problem

Aggressive driving behaviors include exceeding the speed limit, driving too fast for conditions and following too close. The combination of these violations contributed to 41 percent of fatalities and 35.8 percent of serious injuries in Missouri during the last three years. Speeding is the single most common aggressive driving action. Approximately 40 percent of Missouri fatalities over the last three years were speed-related.

Aggressive Driver Involved

	2009	2010	2011	Total
Fatal Crashes*	325	316	276	917
Serious Injury Crashes*	1,752	1,680	1,497	4,929
Fatalities	370	339	310	1,019
Serious Injuries	2,337	2,237	1,971	6,545

*Fatal and serious injury crashes involved at least one aggressive driver.

Key Strategies

Education

- Educate roadway users on the dangers of aggressive driving and the rules of the road
- Use pre- and post-enforcement operation news releases to educate the public about enforcement efforts

Enforcement

- Increase targeted enforcement on high-incident corridors
- Expand Selective Traffic Enforcement Programs

Engineering

- Expand the use of speed monitoring signs

Technology

- Install detectors to monitor speeds along major corridors

Performance Measures

Number of fatalities and serious injuries involving an aggressive driver

Number of fatal and serious injury crashes involving an aggressive driver

Unrestrained Drivers and Occupants

The Problem

Wearing a safety belt or using a child restraint is the single most effective way to prevent death and reduce injuries in a crash. Lap and shoulder belts used together reduce the risks of fatal injuries to front-seat passenger vehicle occupants by 45 percent and reduce the risk of moderate-to-critical injuries by 50 percent. For occupants of light trucks, using safety belts lower the risk of fatal injuries by 60 percent and moderate-to-critical injuries by 65 percent.

During the past three years, 68 percent of individuals killed in crashes in Missouri were unrestrained. The number of unbelted teens killed in Missouri crashes during the last three years is even higher – 75.4 percent. When analyzing only the pick-up truck drivers and passengers, 84 percent of those killed during the last three years were unrestrained. Missouri's observed safety belt use rate of 79 percent in 2011, is well below the national average of 84 percent Missouri conducts both a statewide and a teen safety belt use observational survey each year.

The Child Safety Seat and Commercial Motor Vehicle Driver Safety Belt Use Surveys are conducted periodically. Teen safety belt use is of particular concern. This group's safety belt use is 12 percent lower than the overall use rate. The chart on page 27 reports the results of the most recent Missouri observational surveys.

Unrestrained Occupants Involved

	2009	2010	2011	Total
Fatal Crashes*	402	393	362	1,157
Serious Injury Crashes*	1,347	1,256	1,149	3,752
Fatalities	425	392	380	1,197
Serious Injuries	1,703	1,598	1,451	4,752

*Fatal and serious injury crashes involved at least one vehicle occupant who was killed or seriously injured without being restrained.

Survey	Year	Safety Belt Use
Statewide (all users)	2011	79%
Teen	2011	66%
Child Safety Seat (under 4)	2009	91%
Commercial Motor Vehicle	2010	81%

Key Strategies

Education

- Continue to educate law enforcement about the Graduated Driver License (GDL) statute and the provision that defines safety belt enforcement as a primary violation
- Educate GDL recipients about the mandatory safety belt use component of the law
- Educate parents, caregivers and grandparents about proper selection and installation of child safety and booster seats
- Recruit and certify more law enforcement officers as Child Passenger Safety Technicians
- Continue to expand public information and education campaigns to educate the general public and target groups (pick-up truck and teen occupants) about the importance of occupant protection
- Expand the number of child safety seat inspection stations and certified Child Passenger Safety Technicians

Enforcement

- Aggressively enforce the occupant protection component of the GDL law
- Aggressively enforce the child safety seat and booster seat laws



- Encourage law enforcement to enact a zero tolerance policy when enforcing the secondary occupant protection law
- Increase the emphasis on special occupant protection mobilizations that include public information campaigns and Selective Traffic Enforcement Programs

Engineering

- Increase use of message boards and signs that encourage restraint use

Public Policy / Other

- Enact a primary safety belt law
- Expand the number of local primary safety belt ordinances

Performance Measures

Rate of safety belt use:

- statewide
- nationally
- teens
- children under four years of age
- commercial motor vehicle drivers

Number of unrestrained vehicle occupant fatalities and serious injuries

Number of unrestrained vehicle occupant fatal and serious injury crashes

Percent of unbelted drivers killed in crashes

Percent of unbelted teen drivers (15-19) killed in crashes

Number of local primary safety belt ordinances

A "Buckle Up" exhibit displaying car keys of those teenagers killed in car crashes that were not wearing their safety belts



Distracted /Drowsy Drivers

The Problem

Distracted driving is a diversion of the driver's attention from activities critical to safe driving. There is a growing body of evidence which suggests driver distractions, both inside the vehicle and the road environment, are becoming increasingly large contributors to road trauma.

It is estimated that drivers engage in a secondary task between one-quarter and one-half of the time they drive. According to a recent study by Virginia Tech Transportation Institute, a risk for being involved in a critical incident is 23 times greater if the driver texts while driving. About 20 percent of Missouri fatal crashes involved a distracted driver during the last three years. About 40 percent of the distracted drivers involved in fatal crashes in the last three years were between 15 and 30 years of age.

On January 1, 2012, Missouri's law enforcement officers began using a revised crash report which includes additional data elements that address distracted driving. This more detailed report will provide data that can be used to more accurately assess the magnitude of this high-risk behavior.

Drowsy driving impairs performance and can ultimately lead to falling asleep at the wheel. Drowsiness impairs reaction time, vigilance, attention and information processing. Research shows that young male drivers; shift workers whose sleep is disrupted by working at night

or by working long or irregular hours; and people with untreated sleep disorders are at greatest risk for drowsy driving.

Drowsy driver statistics became available January 1, 2012, in the Missouri Crash Report under Driver Fatigue/Asleep as a contributing circumstance.

Key Strategies

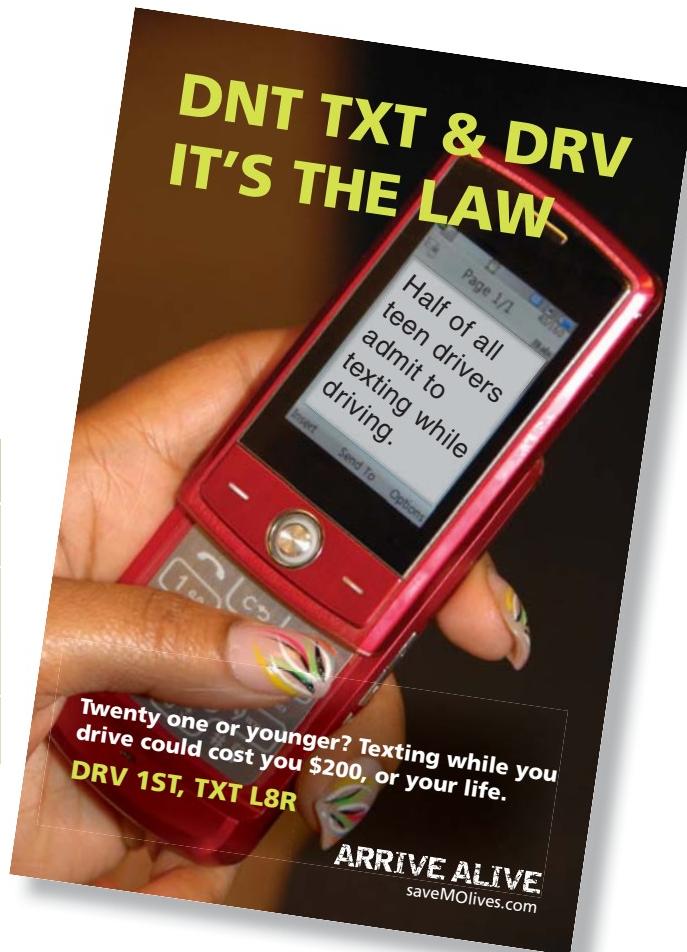
Education

- Continue to expand public information campaigns to educate the roadway user on the dangers of distracted driving
- Encourage companies to strengthen distracted driving policies and consequences for those who text and drive, use cell phones and other electronic devices while driving

Distracted Driver Involved

	2009	2010	2011	Total
Fatal Crashes*	141	176	148	465
Serious Injury Crashes*	1,201	1,100	1,057	3,358
Fatalities	155	182	161	498
Serious Injuries	1,590	1,428	1,327	4,345

*Fatal and serious injury crashes involved at least one distracted driver.





- Encourage companies with multiple shifts to educate employees about fatigued driving
- Seek opportunities in businesses, schools and community organizations to present the Distracted Driving DVD developed at the Distracted Driving Summit

Enforcement

- Increase enforcement of traffic violations that are a result of distracted driving

Engineering

- Install center and edgeline rumble strips/stripes

Technology

- Increase use of in-vehicle drowsy or distracted driver detection monitoring devices

Public Policy / Other

- Enact legislation to restrict texting for all drivers
- Enact legislation to restrict the use of hand-held cell phones while driving
- Enhance the GDL law to ban cell phone use by beginner drivers

Performance Measures

Number of fatalities and serious injuries involving a distracted driver

Number of fatal and serious injury crashes involving a distracted driver

Number of fatalities and serious injuries involving a driver using a cell phone

Number of fatalities and serious injuries involving a drowsy driver (*Data not yet available*)



OSAGE

BEACH

FIRE DISTRICT

RESCUE

Young Drivers (15-20 Years of Age)

The Problem

Traffic crashes are the leading cause of death among youth in Missouri, accounting for nearly 13.2 percent of traffic fatalities during the last three years. Although comprising only 8.3 percent of Missouri licensed drivers, they were involved in 21.7 percent of fatal and disabling injury crashes during the last three years. These early driving years are of particular concern because of driver inexperience and the high frequency of risky behaviors such as speeding, distracted driving, alcohol use and failing to use safety belts.

Key Strategies

Education

- Expand the availability of driver education programs for young drivers (classes, web-based, etc.)
- Educate young drivers on all aspects of safe driving and rules of the road
- Educate parents on the importance of purchasing safety-enhanced vehicles for their young drivers
- Educate parents about the availability of in-vehicle driver monitoring devices
- Educate parents on the importance of open communication with their young drivers regarding high-risk driving behaviors (e.g. distractions, impairment, safety belt use, dealing with passengers, etc.)
- Expand peer-to-peer training on safe driving habits and being a safe/respectful passenger

Emergency Medical Services

- Develop a plan to expand the awareness and use of In Case of Emergency (ICE) to encourage people to enter emergency contact information in their mobile phone

Young Drivers (15-20 Years of Age) Involved

	2009	2010	2011	Total
Fatal Crashes*	139	111	128	378
Serious Injury Crashes*	1,187	1,054	934	3,175
Fatalities	156	119	151	426
Serious Injuries	1,646	1,444	1,252	4,342

*Fatal and serious injury crashes involved at least one driver 15-20 years of age.

Enforcement

- Encourage strict enforcement of GDL law (e.g. curfew, safety belt, passenger restrictions)
- Expand enforcement targeting young drivers
- Encourage strict enforcement of texting law
- Expand law enforcement participation in the Operation Safe Teen initiative

Public Policy / Other

- Enhance GDL law components to include passenger restrictions, stricter curfews, increased supervised driving hours and restricted cell phone use

Performance Measures

Number of young driver-involved fatalities and serious injuries

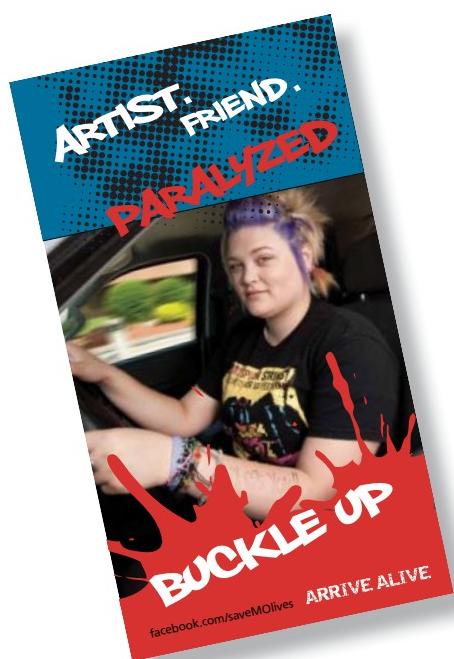
Number of young driver-involved fatal and serious injury crashes

Number of young aggressive driver-involved fatal and serious injury crashes

Number of young run-off-road driver-involved fatal and serious injury crashes

Number of young person (15-20) fatalities and serious injuries resulting from crashes

Percent of unbelted young person (15-20) driver and passenger fatalities and serious injuries



Substance-Impaired Drivers

The Problem

Substance-impaired drivers contributed to 28.7 percent of Missouri's fatalities during the past three years. Alcohol remains the primary contributor to substance-impaired driving crashes; however, there is evidence that other drugs play a growing role. Male drivers were more likely than females to be involved in substance-impaired crashes. They were responsible for 83.8 percent of substance-impaired driving fatalities during the last three years. Of the children killed in motor vehicle crashes over the last three years, 10.4 percent were riding with a substance-impaired driver.

Key Strategies

Education

- Continue to educate the roadway users, business owners and alcohol servers on the dangers of substance-impaired driving
- Update and implement the statewide alcohol education and enforcement strategic plan
- Educate hospital and emergency medical service (EMS) workers in current state law relating to substance-impaired driving blood draws
- Provide information to the judicial community about Substance Abuse Traffic Offenders Program Emergency Medical Services
- Develop a standard protocol for EMS personnel to conduct on-scene blood draws as requested by law enforcement

Enforcement

- Encourage multi-agency initiatives and task forces to identify target locations, times, etc. for enforcement efforts
- Develop blood-draw policy for use with hospitals and law enforcement agencies
- Expand the Drug Evaluation and Classification program (e.g. drug recognition experts, prosecutor training, etc.)



Substance-Impaired Drivers* Involved

	2009	2010	2011	Total
Fatal Crashes**	235	219	198	652
Serious Injury Crashes**	822	685	672	2,179
Fatalities	264	229	221	714
Serious Injuries	1,103	926	900	2,929

*Substance-impaired includes alcohol and/or any other drugs.

**Fatal and serious injury crashes involved at least one substance-impaired driver.



- Increase the number of sobriety checkpoints
- Increase the number of law enforcement taking Advanced Roadside Impaired Driving Enforcement training
- Increase law enforcement participation in Driving While Intoxicated (DWI) enforcement and specialized mobilization efforts
- Streamline the paperwork used by the arresting officer for processing a DWI

Technology

- Deploy in-vehicle sensors to inhibit alcohol-impaired driving

Public Policy / Other

- Maintain and enhance substance-impaired driving laws
- Increase conviction rates on original charge
- Enact legislation requiring ignition interlocks for first-time offenders
- Enact legislation requiring extension of ignition interlock use for repeat offenders who test positive while using ignition interlock
- Encourage enactment of local substance-impaired driving ordinances (e.g. open containers, curfew, prohibit minors in bars, etc.)
- Improve reporting of DWI offenses by law enforcement, prosecutors and courts
- Strengthen penalties for refusing a blood alcohol content (BAC) test
- Improve process for obtaining warrants in BAC refusal cases
- Increase monitoring of DWI offenders through use of DWI Courts and 24/7 sobriety testing program

Performance Measures

Number of fatalities and serious injuries involving a substance-impaired driver

Numer of fatal and serious injury crashes involving a substance-impaired driver

Number of fatalities involving an alcohol-impaired driver with .08 BAC or greater

Number of fatalities and serious injuries involving a drug-impaired driver (other than alcohol)

Number of ignition interlock installations



Unlicensed, Revoked or Suspended Drivers

The Problem

During the past three years in Missouri, 15 percent of fatal crashes involved drivers who were unlicensed, revoked or suspended. Motorcycle operators are of particular concern because an unlicensed motorcycle driver was involved in 38 percent of fatal motorcycle involved crashes. Young drivers aged 15-20 made up 10.4 percent of the unlicensed drivers involved in fatal crashes between 2009 and 2011 in Missouri. National estimates indicate that 75 percent of suspended/re-voked drivers continue to drive.

Unlicensed, Revoked or Suspended Driver Involved

	2009	2010	2011	Total
Fatal Crashes*	109	114	118	341
Serious Injury Crashes*	557	518	457	1,532
Fatalities	123	120	135	378
Serious Injuries	756	686	594	2,036

*Fatal and serious injury crashes involved at least one unlicensed, revoked or suspended driver.

Key Strategies

Enforcement

- Conduct safety checkpoints in high-risk areas
- Identify methods to encourage drivers who have been suspended or revoked – and whom are eligible – to obtain reinstated license

- Eliminate non-driving related reasons that drivers licenses are suspended or revoked
- Increase use of license plate readers

Technology

- Increase use of license plate readers to help identify suspended or revoked drivers

Public Policy / Other

- Link records between the driver license and motor vehicle computer systems
- Develop a consensus for legislation to more seriously punish the suspended or revoked driver (e.g. impound vehicle or license plate and increase sanctions)
- Allow only one renewal of a motorcycle permit
- Revise Missouri statutes regarding license suspensions and revocations
- Expand use of separate court dockets to address suspended and revoked drivers

Performance Measures

Number of fatalities and serious injuries involving an unlicensed driver

Number of fatal and serious injury crashes involving an unlicensed driver

Number of fatal and serious injury crashes involving an unlicensed motorcycle operator

Number of fatal and serious injury crashes involving an unlicensed 15 to 20-year-old driver



EMPHASIS AREA III / SPECIAL VEHICLES

The three types of vehicles listed below are of special interest in the Blueprint. Crashes involving these vehicles often pose increased risk of fatalities or serious injuries and receive elevated media attention. A three-year total (2009-2011) of fatalities and serious injuries for each special vehicle is located in the table below.

- Commercial Motor Vehicles (CMVs)
- All-Terrain Vehicles (ATVs)
- School Buses/School Bus Signals

Fatalities and Serious Injuries by Special Vehicle*

2009 - 2011

Crash Type	Fatalities				Serious Injuries				Total
	2009	2010	2011	Subtotal	2009	2010	2011	Subtotal	
Commercial Motor Vehicles **	101	103	119	323	537	494	457	1,488	1,811
All-Terrain Vehicles	20	19	8	47	116	108	109	333	380
School Buses/School Bus Signals	2	5	1	8	35	34	19	88	96

*Fatalities and serious injuries for commercial motor vehicles include everyone killed or seriously injured in crashes involving at least one CMV.

*Fatalities and serious injuries for school buses/school bus signals include everyone killed or seriously injured in crashes involving a school bus or school bus signal.

*Fatalities and serious injuries for ATVs include everyone killed or seriously injured involving at least one ATV.

**CMVs include trucks having a gross vehicle weight rating of 10,001 pounds or more, buses or school buses having occupant capacities of nine or more including the driver, and vehicles displaying hazardous material placards.



Commercial Motor Vehicles

The Problem

Commercial motor vehicles (CMVs) make up 20 percent of all traffic on Missouri interstates. Between 2009 and 2011, CMVs were involved in 7.7 percent of traffic crashes and 12.8 percent of fatal traffic crashes in Missouri. It's a common misconception that the CMV driver is usually responsible for the crash. When analyzing the CMV driver involved fatal and serious injury crashes over the last three years, the drivers of the other vehicles involved were responsible for 60 percent of those crashes.

Key Strategies

Education

- Educate roadway users, motor carriers and the agricultural community on commercial vehicle performance, visibility and regulations
- Incorporate "Share the Road" slogan in press releases and promotional events
- Increase the use of changeable message boards to promote CMV safety messages to motorists
- Expand CMV educational programs and events to include those such as:
 - No-Zone
 - Trucker Buddy
 - National Truck Driver Appreciation Week
 - Road Check
 - Brake Safety Week
 - Operation Safe Driver
 - Teens and Trucks
 - Distracted Driving
- Develop awareness program to increase use of safety belts among CMV drivers
- Explore development of a State Road Team
- Implement a comprehensive mechanic inspection procedure outreach program
- Incorporate into driver education programs presentations on how to safely operate around and share the road with CMVs
- Educate law enforcement, EMS and tow operators on quick clearance practices

Emergency Medical Services

- Enhance incident management training for local responders (approaching and safely handling a CMV crash)

Enforcement

- Participate in Operation Safe Driver, Brake Safety Week and Road Check Programs
- Expand enforcement on rural and urban high-incident corridors
- Maintain the motor coach inspection program with the Motor Carrier Safety Assistance Program partners
- Maintain the new entrant audit program (early contact with both federal and state new motor carrier entities)
- Continue enforcement efforts at fixed scale locations on high-incident corridor routes

Engineering

- Initiate appropriate engineering interventions on high-incident corridors (e.g. height activated flashing beacons, etc.)

Technology

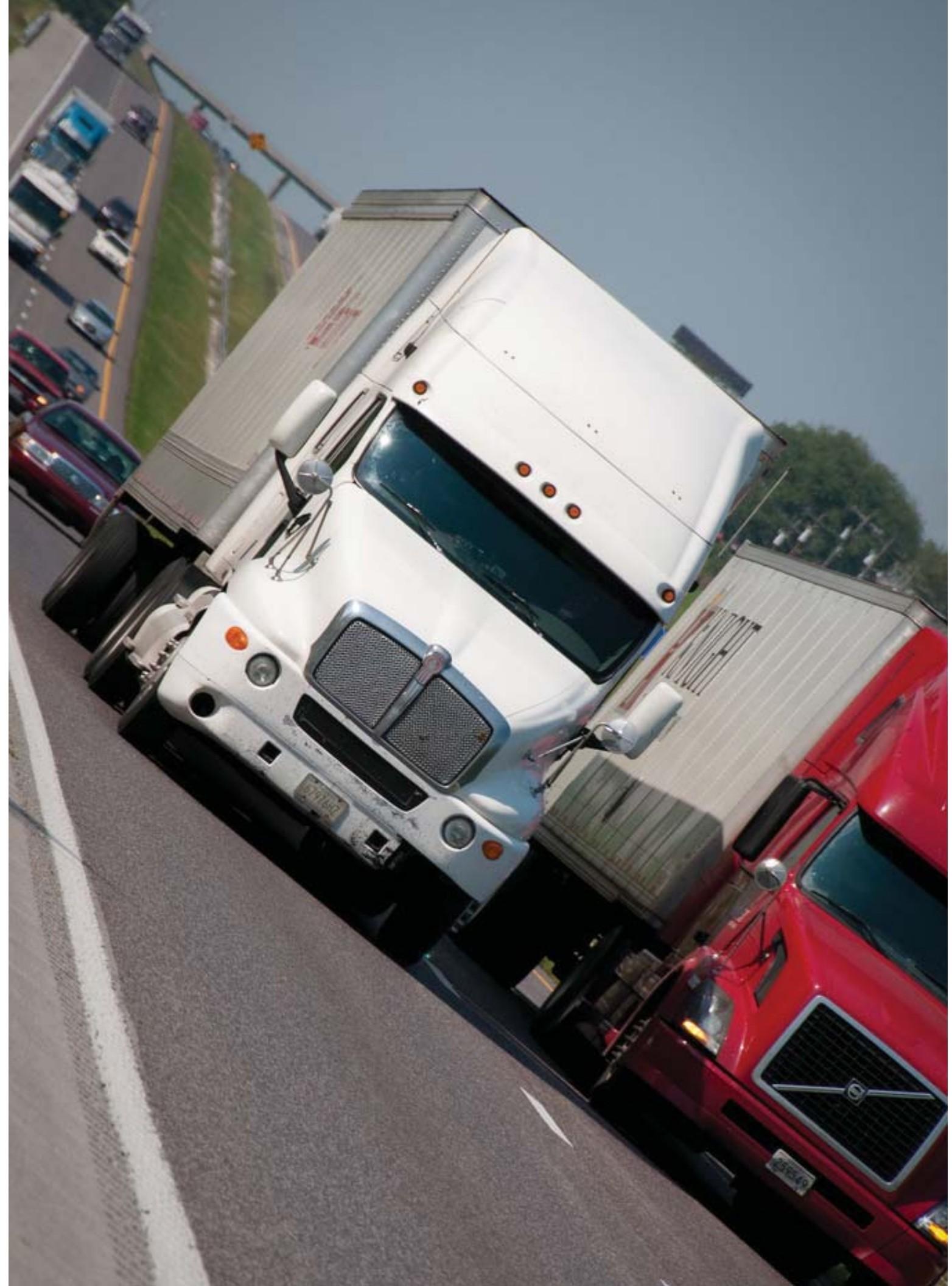
- Explore "leveraging dollars for technology"
 - Approach large carriers to champion the use of vehicle technologies
- Identify and share with industry the types of motor carrier safety technologies available (roll over, lane departure, driver fatigue, etc.)
- Explore expanding virtual inspection opportunities
- Use Kansas City Scout and St. Louis incident notification systems to alert drivers further upstream of incidents
- Use e-Updates to notify CMV drivers of roadway issues
- Deploy use of parking space counters to better inform CMV operators of parking availability at rest areas

Performance Measures

Number of fatalities and serious injuries involving a commercial motor vehicle

Number of fatal and serious injury crashes involving a commercial motor vehicle

Percent of unbelted commercial motor vehicle driver fatalities and serious injuries



CMV Involved by Vehicle Type

Total

	2009	2010	2011	Total
Fatal Crashes*	90	95	107	292
Serious Injury Crashes*	381	373	347	1,101
Fatalities	101	103	119	323
Serious Injuries	537	494	457	1,488

Small Bus (9-15 with Driver)

	2009	2010	2011	Total
Fatal Crashes*	3	0	0	3
Serious Injury Crashes	12	4	10	26
Fatalities	4	0	0	4
Serious Injuries	27	4	19	50

GVWR >=10,001 Pounds

	2009	2010	2011	Total
Fatal Crashes*	86	90	102	278
Serious Injury Crashes*	338	336	320	994
Fatalities	96	98	114	308
Serious Injuries	467	448	413	1,328

Bus (16 or More with Driver)

	2009	2010	2011	Total
Fatal Crashes*	0	2	3	5
Serious Injury Crashes*	14	17	6	37
Fatalities	0	2	3	5
Serious Injuries	24	20	11	55

Vehicles with Hazardous Material Placards

	2009	2010	2011	Total
Fatal Crashes*	9	11	12	32
Serious Injury Crashes*	6	10	6	22
Fatalities	11	11	13	35
Serious Injuries	8	10	7	25

School Bus (Less Than 16 with Driver)

	2009	2010	2011	Total
Fatal Crashes*	0	0	0	0
Serious Injury Crashes*	7	5	1	13
Fatalities	0	0	0	0
Serious Injuries	12	6	1	19

*Fatal and serious injury crashes involved at least one CMV.

Note:

Commercial motor vehicles include trucks having a Gross Vehicle Weight Rating of 10,001 pounds or more, buses or school buses having occupant capacities of nine or more including the driver, and vehicles displaying hazardous material placards.

Crashes can involve more than one factor (e.g., bus, gross weight >=10,000 pounds, hazardous material placard); therefore, adding these numbers together will represent more than the total number of fatal and serious injury crashes and the total number of fatalities and serious injuries.

School Bus (16 or More with Driver)

	2009	2010	2011	Total
Fatal Crashes*	2	4	1	7
Serious Injury Crashes*	13	13	11	37
Fatalities	2	5	1	8
Serious Injuries	19	26	15	60



All-Terrain Vehicles

The Problem

Nationally there are approximately 120,000 to 130,000 all-terrain vehicle riders treated in emergency rooms each year. In spite of the fact that driving ATVs on roadways in Missouri is prohibited except for agricultural and industrial purposes, 45 ATV riders were killed in traffic-related crashes from 2009 through 2011.

Key Strategies

Education

- Educate ATV operators and riders about the importance of wearing protective gear-especially helmets
- Increase the awareness and availability of hands-on ATV safety training courses
- Partner with the agriculture community (Farm Bureau, FFA, etc.) to share safety tips about operating ATVs in rural areas and on rural roads
- Educate ATV operators and riders about the dangers of substance-impaired driving/riding
- Conduct public information and education programs on the laws and requirements specific to ATV operation, specifically for those under the age of 18

Public Policy / Other

- Invite Farm Bureau and/or Department of Agriculture to participate in the MCRS

Enforcement

- Increase enforcement of Missouri laws pertaining to ATVs especially:
 - those pertaining to operation of ATVs on streets and highways
 - having a valid license
 - operating the vehicle while substance-impaired
 - passenger restrictions

This information can be found in Chapter 300 Model Traffic Ordinance and Section 300.348 RSMo

Performance Measures

Number of fatalities and serious injuries involving an ATV

Number of fatal and serious injury crashes involving an ATV

Number of ATV rider traffic-related fatalities and serious injuries

All-Terrain Vehicles

	2009	2010	2011	Total
Fatal Crashes*	19	19	7	45
Serious Injury Crashes*	97	90	97	284
Fatalities	20	19	8	47
Serious Injuries	116	108	109	333

*Fatal and serious injury crashes involved at least one ATV.

School Buses / School Bus Signals

The Problem

School buses are nearly eight times safer than passenger vehicles but when a crash occurs involving a school bus it attracts a great deal of attention. Of the eight people killed in crashes involving school buses/school bus signals from 2009 through 2011, only one was an actual occupant of a school bus. The remaining fatalities included two pedestrians and five occupants in the other involved vehicle(s).

Key Strategies

Education

- Educate roadway users about school bus laws and regulations
- Educate school bus drivers and riders about school bus safety
- Encourage Department of Elementary and Secondary Education (DESE) and the Missouri State Highway Patrol (MSHP) to continue working with school districts regarding driver and bus safety
- Educate students and parents about school bus safety before the school year begins

Enforcement

- Enforce stop arm and signal violations (e.g. Officer-On-The-Bus program)
- Enhance MSHP's school bus safety inspection program

School Buses/School Bus Signals Involved

	2009	2010	2011	Total
Fatal Crashes*	2	4	1	7
Serious Injury Crashes*	24	20	15	59
Fatalities	2	5	1	8
Serious Injuries	35	34	19	88

*Fatal and serious injury crashes involved either a school bus or school bus signal.

Engineering

- Educate local entities about proper signing and speed limits for school zones
- Work with bus companies to select stops with proper sight distance

Technology

- Deploy automated enforcement on buses to capture stop-arm violations

Public Policy / Other

- Encourage school districts to purchase buses with passenger restraint systems
- Invite DESE to participate in the Missouri Coalition for Roadway Safety
- Build areas for school buses to pull off the traveled portion of a roadway to safely load and unload students
- Use ride-along crossing guards at bus stops for assisting students who may have to cross busy streets and highways
- Continue serving on the School Bus Task Force

Performance Measures

Number of fatalities or serious injuries involving a school bus/school bus signal

Number of fatal and serious injury crashes involving a school bus/school bus signal

Number of children (less than 13 years of age) killed or seriously injured due to crashes involving school buses/school bus signals



EMPHASIS AREA IV / VULNERABLE ROADWAY USERS

The term Vulnerable Roadway Users includes the roadway users who are most at risk for death or serious injury when involved in a motor-vehicle-related crash. Vulnerable roadway users include:

- Older Drivers (65 years of age or older)
- Motorcyclists
- Pedestrians
- Bicyclists

Missouri anticipates a 62 percent increase in the population of people age 65 years of age and over between 2005 and 2025, from 774,000 to 1,258,000. As people age, they are at increased risk for death or serious injury in a crash. In a crash of equal severity, older drivers are more likely than their younger counterparts to die.

Between 2009 and 2011, more than 7,000 traffic crashes involving motorcycles occurred in Missouri. Almost 30 percent of the crashes resulted in a fatality or serious injury.

Many Missourians rely on non-motorized transportation options such as walking and bicycling. While both forms of transportation have the potential to provide health benefits, the mode leaves the traveler vulnerable to serious or fatal injuries if struck by a motor vehicle.

As shown above, when any of the vulnerable roadway users are involved in a traffic crash, their potential harm is much greater. Four vulnerable roadway users are discussed in this section.

The table below illustrates a three-year total of fatalities and serious injuries of or involving vulnerable roadway users.

Total Fatalities and Serious Injuries Involving Vulnerable Roadway Users

2009 - 2011

Crash Type	Fatalities				Serious Injuries				Total
	2009	2010	2011	Subtotal	2009	2010	2011	Subtotal	
Older Drivers Involved (65 or older)*	156	155	128	439	969	890	800	2,659	3,098
Motorcyclists	84	93	81	258	639	591	634	1,864	2,122
Pedestrians	71	57	75	203	259	268	302	829	1,032
Bicyclists	2	7	1	10	72	69	73	214	224

* Fatalities and serious injuries for older drivers involved at least one driver 65 years of age or older.



Older Drivers (65 Years of Age or Older)

The Problem

The number of Missourians aged 65 or older is projected to grow by nearly 500,000 during the next 13 years, bringing the total number of older adults to an estimated 1,258,000. The proportion of older adults in the state's population will grow from an estimated 13.6 percent in 2009 to 15.1 percent by 2015 and to 19.1 percent by 2025.

Whether older adults have the capacity to meet their transportation needs is often measured by how many hold a valid drivers license. In July of 2012, 743,215 people aged 65 or older held a Missouri drivers license. They accounted for 16.9 percent of the 4,398,831 persons licensed in the state.

Ours society is highly mobile. In some areas of the state, driving may be the sole means of transportation. However, as people age, driving abilities can be compromised by changes in vision, attention, perception, memory, decision-making, reaction time and aspects of physical fitness and performance. Continuing to drive safely means enhanced mobility and independence for older adults in Missouri. These factors heavily influence the quality of life of older adults, their caregivers and their friends and families.

Older Drivers (65 Years of Age or Older) Involved

	2009	2010	2011	Total
Fatal Crashes*	140	148	118	406
Serious Injury Crashes*	679	649	609	1,937
Fatalities	156	155	128	439
Serious Injuries	969	890	800	2,659

*Fatal and serious injury crashes involved at least one driver 65 years of age or older.

Key Strategies

Education

- Educate older drivers and their family and friends about the risks associated with certain prescription drugs and physical conditions
- Educate stakeholders (law enforcement, driver license offices, healthcare professionals, etc) about medical fitness to drive
 - Provide training to driver license office staff
 - Develop and promote assessment tools for caregivers, physicians, driver license offices and driver examiners
 - Promote driver rehabilitation as an area of practice
 - Promote use of state reporting forms by family, medical professionals and law enforcement
 - Provide an annual conference regarding older driver safety
- Increase and promote the availability of alternative transportation options
 - Enhance existing one call-one click service for transportation (e.g. United Way 2-1-1)
 - Educate communities and legislators on the importance of providing more extensive and convenient public transportation in rural areas
 - Educate older drivers, community organizations and families on the benefits and availability of alternative transportation
 - Create and implement public education campaign to create awareness of older driver safety and the benefits and availability of alternative transportation resources
 - Normalize the discussion regarding driving retirement

Older Drivers (65 Years of Age or Older) - continued

- Educate older drivers on safe driving habits and practices
 - Create and implement a positive message campaign to promote older driver training and education (e.g. American Automobile Association's Roadwise Review and AARP's Older Driver Safety Course)
 - Use public service announcements to encourage awareness of older driver issues
 - Provide more information on mobility counseling and alternative transportation
 - Educate older drivers on ways to improve their safety in a vehicle (e.g. driver refresher course, vehicle adjustments, use of safety belts, health screenings)

Enforcement

- Pilot the use of short intervention assessment tools to determine fitness to drive

Emergency Medical Services

- Develop a plan to expand the awareness and use of In Case of Emergency (ICE) to encourage people to enter emergency contact information in their mobile phone

Engineering

- As appropriate, implement the *Highway Design Handbook for Older Drivers and Pedestrians* published by the Federal Highway Administration
- Expand and maintain roadway visibility features

Technology

- Use in-vehicle technology warning devices to advise drivers of upcoming road conditions (e.g. school zones, sharp curve, travel congestion ahead or other travel conditions)
- Deploy in-vehicle blind spot and back-up intervention systems

Public Policy / Other

- Develop and implement evidence-based assessment tools for use by licensing officials, physicians and other professions
- Implement a program to screen older drivers for vision problems with special emphasis on cataract screening
- Continue working with the Subcommittee on Elder Mobility and Safety under the Missouri Coalition for Roadway Safety
- Place mobility management professionals in key communities across the state
- Encourage Metropolitan Planning Organizations and Regional Planning Commissions to include input from Area Agencies on Aging, Centers for Independent Living and transportation providers when developing regional plans
- Expand the diversity of partners participating on the Subcommittee on Elder Mobility and Safety
- Evaluate the effectiveness of driver licensing and testing offices in identifying, screening and aiding medically unfit older drivers

Performance Measures

Number of fatalities and serious injuries involving an older driver

Number of fatal and serious injury crashes involving an older driver

Number of older vehicle occupant fatalities and serious injuries

Motorcyclists

The Problem

In Missouri, motorcycle operators and passengers accounted for 10.4 percent of the traffic fatalities from 2009 through 2011. Motorcycles represented 2.4 percent of the registered vehicles in Missouri but were involved in 11.3 percent of all fatal traffic crashes during the last three years. Operating over the speed limit, driving too fast for conditions and riding while substance-impaired are the most frequent causes of these crashes.

Motorcyclists

	2009	2010	2011	Total
Fatalities*	84	93	81	258
Serious Injuries*	639	591	634	1,864

*Fatalities and serious injuries for motorcycles include drivers and passengers of motorcycles.

Key Strategies

Education

- Expand motorcycle safety training throughout the state
- Expand programs to educate other roadway users on issues relating to motorcycle performance, visibility and vulnerability
- Conduct public information and education programs to encourage all motorcycle operators to become properly licensed
- Increase public information and education programs designed to discourage riding under the influence of alcohol and/or other drugs
- Conduct public information and education programs for motorcycle operators and passengers on the importance of wearing all personal protective gear
- Educate law enforcement officers on the identification of non-compliant DOT approved helmets and the importance of enforcing Missouri's all-rider helmet law



Motorcyclists, continued

- Conduct public information and education programs on identified high-risk motorcycle crash corridors

Emergency Medical Services

- Provide in-service training to EMS personnel on accident scene management specific to motorcycle crashes

Enforcement

- Aggressively enforce Missouri's all-rider helmet law including issuing citations for non-compliant DOT approved helmets
- Enforce speeding and substance-impaired riding laws
- Enforce Missouri's motorcycle license and endorsement laws
- Conduct aggressive enforcement on identified high-risk motorcycle crash corridors

Engineering

- Consider the impact on motorcycles in planning and maintaining roadways
- Identify motorcycle high-incident corridors and conduct road safety assessments
- Plan and implement motorcycle-friendly work zones

Technology

- Encourage the use of motorcycles equipped with antilock braking systems, especially for those new to riding or to a particular bike

Public Policy/Other

- Maintain Missouri's all-rider helmet law
- Create stricter penalties for Missouri's all-rider helmet law
- Allow only one renewal of a motorcycle learners permit

Performance Measures

Number of motorcycle rider fatalities and serious injuries

Number of fatal and serious injury motorcycle crashes

Number of unhelmeted motorcycle rider fatalities and serious injuries

Number of fatalities and serious injuries involving an improperly/unlicensed motorcycle operator

Number of fatalities and serious injuries in which motorcycle riders are wearing non-compliant DOT approved helmets (*Data not yet available*)

Pedestrians

The Problem

Walking is a popular mode of transportation due, in no small part, to the positive health benefits, economy and emphasis on livable communities. Communities are developing walkable environments that are appealing to all residents.

Pedestrians are at a much higher risk of a serious or fatal injury than are occupants of motor vehicles.

From 2009 through 2011, they comprised less than one percent of all crashes, but accounted for 8.2 percent of all fatalities and 4.5 percent of all serious injuries in Missouri crashes.



Pedestrian age and vehicle speed are the two most significant factors determining the outcome of a crash. This is especially true for children and older pedestrians. A landmark study, "Killing Speed and Saving Lives," conducted by the UK Department of Transportation in 1987 found that pedestrians hit by a vehicle

Pedestrians

	2009	2010	2011	Total
Fatalities	71	57	75	203
Serious Injuries	259	268	302	829

traveling 20 mph have a five percent chance of death, at 30 mph the risk of death increases to 45 percent and at 40 mph it increases to 85 percent. Pedestrian trips are a larger percentage of all trips in the urbanized areas of the state. Of the 2009-2011 Missouri pedestrian fatalities, 71.9 percent occurred in urbanized and 28.1 percent occurred in rural areas.

When evaluating pedestrian crashes in Missouri, it is important to know how a pedestrian is defined. The general perception of a pedestrian is an individual who has chosen walking as their preferred mode of transportation. For the purposes of traffic safety, the definition is more generous and includes anyone on foot or using a wheelchair. For example, a person who intentionally exits a vehicle and then is struck by another vehicle is considered a pedestrian.

Key Strategies

Education

- Increase school programs that address pedestrian safety
- Implement a pedestrian safety education program for older adults (65 years of age or older)
- Educate the public about the dangers of exiting and walking around a disabled vehicle or one involved in an incident
- Educate the public about the dangers of distracted walking
- Encourage pedestrians to increase their visibility by wearing reflective clothing
- Develop a balanced public safety education program that educates drivers and pedestrians on how to safely share the road

Enforcement

- Increase enforcement of speed limits in school zones, areas close to retirement communities and in areas frequented by pedestrians such as downtown areas
- Enforce laws requiring drivers to yield to pedestrians
- Increase enforcement of the "Move Over" law

Engineering

- Consider leading pedestrian intervals and automatic walk signals in every cycle as appropriate
- Install in-roadway lights
- Install countdown pedestrian signals
- Improve lighting in selected urban locations
- Improve pedestrian signs and road markings
- Enhance intersection and roadway design to be more pedestrian friendly
- Install proven safety countermeasures (e.g. pedestrian islands) to reduce pedestrian risks at street crossings
- Provide sidewalks and walkways separate from motor vehicle traffic

Technology

- Use dynamic pedestrian detectors to allow more crossing time
- Use passive detection devices to extend or shorten the duration of pedestrian timing as needed
- Use automated enforcement in school zones
- Use rectangular rapid-flashing beacons with pedestrian crossing signals
- Use Pedestrian Hybrid Beacon - formerly known as HAWK (High Intensity Activated CrossWalk Beacons) on unsignalized major roads, stop-sign controlled minor roads and mid-block pedestrian crossings

Public Policy / Other

- Require appropriate apparel and traffic control devices for school crossing guards
- Support Complete Streets Policies and Implementation and Livable Communities Initiatives, in accordance with state resolution HCR 23
- Continue to develop and implement the Safe Routes to School Program

Performance Measures

Number of pedestrian fatalities and serious injuries

Number of pedestrian involved fatal and serious injury crashes

Number of pedestrian fatalities and serious injuries occurring at signalized and unsignalized intersections

Bicyclists

The Problem

Bicyclists are among the most vulnerable road users because of their risk of serious injury when they are involved in a traffic crash. Fortunately in Missouri, bicyclists represent a small portion of total fatalities; only 36 since 2005. Almost 30 percent of those killed were 36-45 years of age.

Bicyclists

	2009	2010	2011	Total
Fatalities	2	7	1	10
Serious Injuries	72	69	73	214

Key Strategies

Education

- Educate bicyclists on proper biking on roadways
- Educate bicyclists about the dangers of inattentive riding
- Educate bicyclists about the value of wearing personal protective gear, especially bicycle helmets
- Educate bicyclists about the need to increase visibility through reflective equipment and clothing, bicycle lighting, etc.

- Develop a balanced public safety education program that educates drivers and bicyclists on how to safely share the road

Enforcement

- Hold bicyclists and motorists accountable for not obeying traffic laws and regulations

Engineering

- Install Share the Road signs where appropriate
- Install bike marking where appropriate such as bike lanes, bike boxes, etc.
- Install shoulders where appropriate
- Install signals with technology that detect bicyclists

Public Policy/Other

- Increase the number of communities with bicycle helmet ordinances
- Enact legislation prohibiting harassment of bicyclists and pedestrians (similar to local laws in Independence and Columbia)

Performance Measures

Number of bicycle rider fatalities and serious injuries

Number of fatal and serious injury bicycle involved traffic crashes



EMPHASIS AREA V / SPECIAL ROADWAY ENVIRONMENTS

Roadway areas that require special attention are work zones, traffic incident management areas and highway/rail crossings. Although the number of fatalities and serious injuries are low in comparison to other emphasis areas, the potential for great harm in a crash is extremely high.

Driving at night challenges drivers' skills and physical abilities. In addition, more unbelted and impaired drivers operate at night, putting themselves and other motorists at increased risk.

The tables below illustrate fatalities and serious injuries by special roadway environment. This section addresses four special roadway environments.

- Nighttime Driving
- Work Zone
- Highway/Rail Crossings
- Traffic Incident Management Areas

Total Fatalities and Serious Injuries Involving Special Road Environments

2009 - 2011

Crash Type	Fatalities				Serious Injuries				Total
	2009	2010	2011	Subtotal	2009	2010	2011	Subtotal	
Nighttime Driving	415	363	355	1,133	2,153	1,978	1,844	5,975	7,108
Work Zone	14	15	11	40	73	102	64	239	279
Highway/Rail Crossings	8	6	8	22	6	5	9	20	42

The table below illustrates fatal and serious injury crashes involved in Traffic Incident Management Areas (TIMA). This is an area of a highway where temporary traffic control is imposed by authorized officials responding to a road-user incident, natural disaster, hazardous material spill or unplanned incident.

Total Fatal and Serious Injury Crashes in Traffic Incident Management Areas

2009 - 2011

Crash Type	Fatal				Serious Injury				Total
	2009	2010	2011	Subtotal	2009	2010	2011	Subtotal	
Traffic Incident Management Area	786	778	716	2,280	5,007	4,716	4,465	14,188	16,468

Nighttime Driving

The Problem

Nighttime driving conditions pose unique challenges for the driver. Glare, limited sight distance, low light conditions and varying degrees of roadway visibility create an environment for additional opportunities for driver error. During the past three years, 45.6 percent of traffic fatalities occurred in nighttime conditions. Substance-impaired drivers are more prevalent at nighttime and were involved in 45.1 percent of the nighttime fatal crashes in the same period. According to research conducted by the National Highway Transportation Safety Administration (NHTSA), safety belt use is lower at night versus the day. Of the people killed in Missouri crashes from 2009 to 2011, 58.7 percent were not wearing safety belts in daytime compared to 79.4 percent at night.

Key Strategies

Education

- Educate the public about nighttime driving safety tips (e.g. dim headlights for on-coming vehicles, slow down, watch for unexpected pedestrians or bicyclists, etc.)

Nighttime Driving Involved

	2009	2010	2011	Total
Fatal Crashes	366	343	318	1,027
Serious Injury Crashes	1,645	1,529	1,427	4,601
Fatalities	415	363	355	1,133
Serious Injuries	2,153	1,978	1,844	5,975

- Educate public on dangers of using cruise control during wet conditions
- Educate public about the risks associated with nighttime driving (e.g. drowsy driving, limited site distance and headlight glare)
- Reemphasize the need to use safety belts on every trip - day or night



Work Zones

Emergency Response

- Develop a plan to expand the awareness and use of ICE to encourage people to enter emergency contact information in their mobile phone
- Improve emergency response time through better planning and communication
- Use proper emergency lighting

Enforcement

- Expand the number of nighttime sobriety checkpoints
- Support targeted enforcement on nighttime high-crash corridors
- Use enforcement to increase nighttime safety belt use
- Enforce GDL law (e.g. curfew)

Engineering

- Install center and edgeline strips/stripes and rumble stripes
- Expand and maintain roadway visibility features (brighter stripes, delineation and signs)
- Install roadway lighting

Technology

- Use in-vehicle edgeline and lane proximity warning devices to warn drivers they are leaving the driving path
- Encourage the development of vehicle technology to recognize moving objects near roadway
- Use flashing signs and digital message boards to alert wrong-way drivers and general public
- Increase use of automatic-dimming headlights

Public Policy / Other

- Modify existing texting while driving laws to apply to all drivers
- Evaluate GDL for strengthening opportunities for nighttime curfew

Performance Measures

Number of nighttime fatalities and serious injuries

Number of nighttime fatal and serious injury crashes

Percent of nighttime fatal and serious injury crashes involving horizontal curves

Percent of nighttime fatal and serious injury crashes involving a substance-impaired driver

Percent of nighttime unbelted driver fatalities and serious injuries

The Problem

A work zone is a temporary roadway environment that poses risk to utility, construction and maintenance workers as well as the driving public. These areas are identified by warning signs/signals/indicators, including those on transport devices (signs, flashing lights, etc.) that mark the beginning and end of a construction, maintenance or utility work area. A work zone extends from the first warning sign, signal or flashing lights to the "End Road Work" sign or the last traffic control device for that work activity.

Work zones also include roadway sections where there is ongoing, moving (mobile) work activity such as lane line painting/marking or roadside mowing only if the beginning of the ongoing, moving (mobile) work activity is designated by warning signs or signals.

Since 2009, 11 to 15 work zone fatalities occurred in Missouri each year. In the past three years, 70.9 percent of fatal crashes that occurred in a Missouri work zone involved a distracted, speeding or substance-impaired driver. These factors pose additional risk to workers in a work zone.

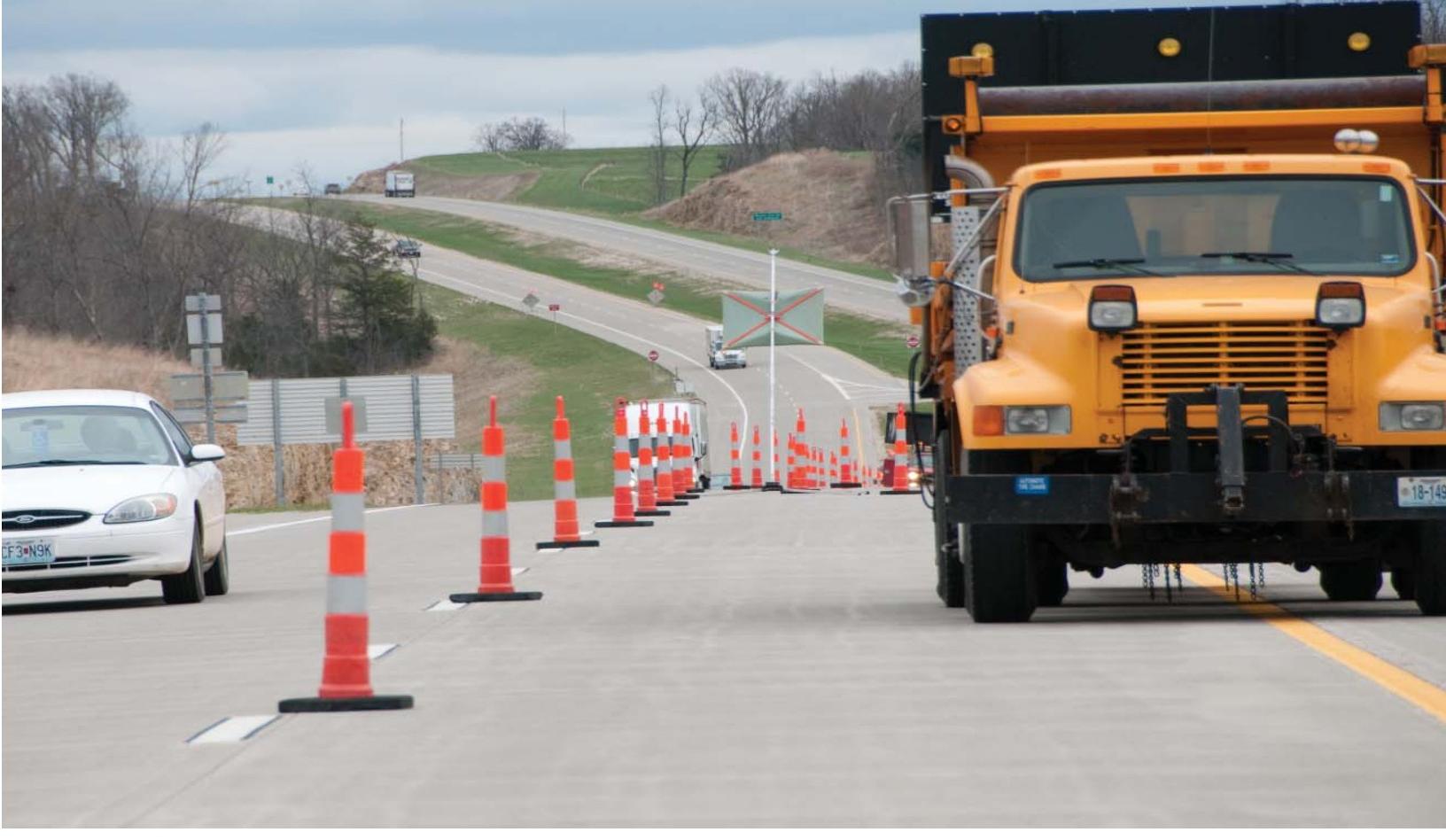
Work Zone Involved

	2009	2010	2011	Total
Fatal Crashes	12	14	11	37
Serious Injury Crashes	48	77	57	182
Fatalities	14	15	11	40
Serious Injuries	73	102	64	239

Key Strategies

Education

- Maintain work zone safety training for contractors, engineers, maintenance personnel and law enforcement
- Conduct yearly flagger training or refresher courses on proper flagging procedures
- Verify flagging personnel are certified flaggers
- Promote "Rate Our Work Zone" survey campaign to the general public



- Educate responders on the importance of incident management and quick clearance practices within work zones

Emergency Medical Services

- Ensure emergency response personnel wear high-visibility apparel
- Coordinate with EMS to ensure close proximity to work zone for quick response

Enforcement

- Ensure law enforcement personnel wear high-visibility apparel
- Increase active and/or passive enforcement in work zones

Engineering

- Ensure work zones are properly set up (signs, barricades, delineators, etc.) prior to beginning of work and at end of day
- Develop traffic management plans to minimize work zone impacts, manage queue length and speeds
- Implement contractor submittal of worker and traffic safety plans
- Implement sequential lighting in nighttime, rural, multi-lane divided roadway work zones
- Include contractors or local partners in work zone reviews

- Use simulation to determine work zone impacts on traveling public
- Promote contractor incentives for safe, visible and mobile work zones

Technology

- Use technology to monitor speeds, delays and queues at active work zones
- Use messages on dynamic message signs to display work zone alerts and safety messages
- Use traveler information tools to display work zone impacts to motorists
- Use advance traveler information system to inform motorists of work zone impacts

Public Policy/Other

- Pass legislation to ban use of hand-held cell phone and texting for all drivers in work zones

Performance Measures

Number of fatalities and serious injuries in work zones

Number of fatal and serious injury crashes in work zones

Number of lane closures versus number of work zone crashes

Highway / Rail Crossings

The Problem

With more than 3,800 public vehicle highway/rail crossings in Missouri, improving grade crossing safety is an enormous challenge which requires combined efforts of railroads; the state, local and federal governments; public safety officials and the public. According to a United States Department of Transportation report, more than 94 percent of crossing incidents are caused by risky driver behavior.

From 1980 to 2011 crashes at grade crossings dropped by 82 percent nationally, however there are still approximately 2,000 incidents annually. Since 2005, 54 people died in Missouri highway/rail crossing crashes.

Key Strategies

Education

- Promote Operation Lifesaver's "Look, Listen and Live" message

Emergency Response

- Educate Emergency Medical Services, fire and law enforcement personnel on the particular challenges of train /vehicle crashes and train derailments

Enforcement

- Aggressively enforce laws against driving around lowered gates

Highway/Rail Crossing Involved

	2009	2010	2011	Total
Fatal Crashes	5	6	7	18
Serious Injury Crashes	4	5	6	15
Fatalities	8	6	8	22
Serious Injuries	6	5	9	20

- Aggressively enforce laws against commercial motor vehicle drivers pulling onto railroad tracks without sufficient space to clear the tracks
- Encourage the use of automated enforcement at railroad crossings

Engineering

- Expand current lights and gates projects
- Encourage use of alternative safety devices at railroad crossings including the use of walk/don't walk lights on sidewalks and auxiliary pole lighting to further illuminate crossing at night
- Encourage closure of redundant crossings to redirect traffic to crossings with the latest safety equipment
- Encourage the use of median barriers on both sides of railroad crossing to deter driving around gates
- Install retroreflective strips on appropriate signs
- Modify locations without sufficient vehicle storage space

Technology

- Use automated enforcement to identify gate violations

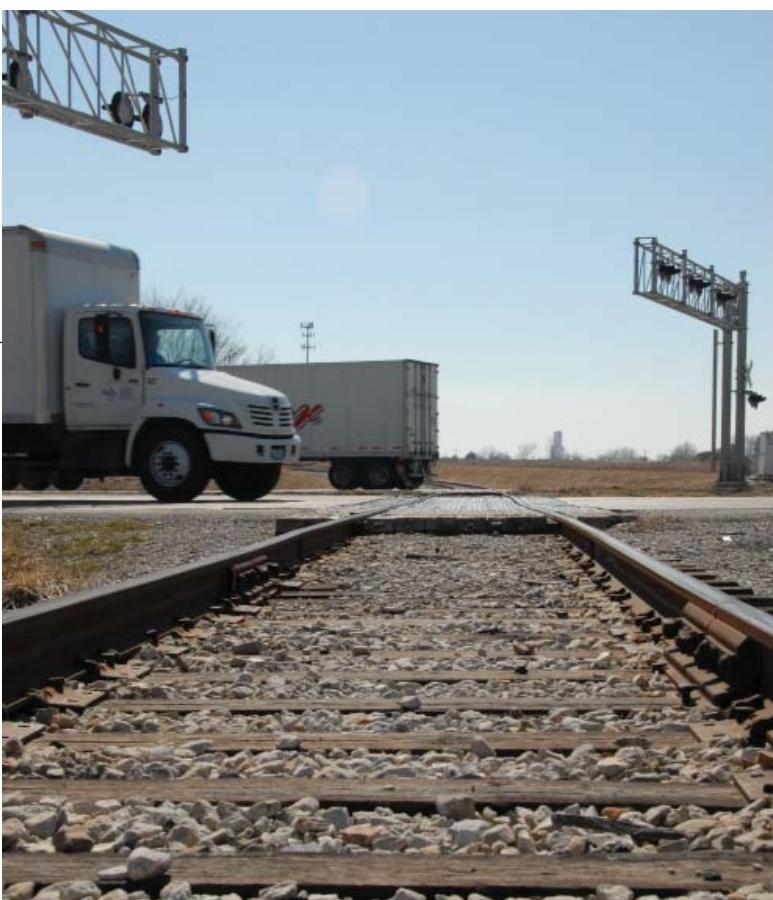
Public Policy/Other

- Encourage local communities to enact ordinances making it illegal to drive around lowered crossing gates
- Actively encourage the federal government through Federal Railroad Administration to regulate blocked crossings so that drivers do not have the need to attempt to beat trains or drive to passive crossings in order to cross railroad tracks

Performance Measures

Number of fatalities and serious injuries involving highway/rail crossings

Number of fatal and serious crashes involving highway/rail crossings



Traffic Incident Management Areas

The Problem

Emergency response is a complex area due to the many entities that may be involved. These include fire and rescue, emergency medical services, law enforcement, towing and recovery, other drivers at the crash scene and the crash victims themselves.

It has been estimated that for every one minute of incident duration, the risk of a secondary crash rises 2.8 percent.



KC Scout Traffic Management Center (TMC)

No amount of prevention will completely eliminate crashes and injuries on our roadways. They are, however, manageable and can be reduced or mitigated through coordination of highway traffic management and emergency response resources.

First, responders must be able to get to the crash scene, which can be difficult in dense and congested traffic patterns. Second, responders must be able to secure the scene to protect the safety of victims and themselves.

Finally, the crash scene must be cleared as quickly as possible to reduce the risk of secondary crashes and restore normal traffic flow.

Traffic Incident Management Area

Involved

	2009	2010	2011	Total
Fatal Crashes	786	778	716	2,280
Serious Injury Crashes	5,007	4,716	4,465	14,188

Key Strategies

Education

- Require IS-100 and IS-700 NIMS training courses for all responders
- Provide training on emergency traffic control to all responders
- Educate the public about the dangers of exiting a disabled or crashed vehicle
- Educate responders on the importance of incident management and quick clearance practices

Enforcement

- Develop incident management plans for interstate corridors
- Support training for law enforcement on the 2012 Missouri Uniform Traffic Crash Report to enable development of a baseline for crashes involving emergency response vehicles and secondary crashes
- Increase the enforcement of Missouri's Move Over Law (Title XIX, Chapter 304, Section 304.022.1) and Move It Law (Title XIX, Chapter 304, Section 304.151.2)



Engineering

- Incorporate emergency response data into an overall problem definition by linking EMS data to crash reports by including the crash report number on EMS data collection forms
- Continue to expand access to systems such as Dynamic Message Signs and other systems that can display crash information

Emergency Medical Services

- Develop a plan to expand the awareness and use of ICE to encourage people to enter emergency contact information in their mobile phone

Public Policy/Other

- Increase public awareness of the importance of yielding the right of way to emergency vehicles and raise public and law enforcement awareness of "Move Over" and "Move It" laws
- Increase public awareness of the importance of moving disabled vehicles involved in non-injury crashes from the roadway as soon as practical to keep these vehicles from potentially obstructing emergency vehicle access to the crash scene
- Work with all responders and agencies to promote and endorse a statewide "Open Roads Philosophy"

Performance Measures

Number of fatalities and serious injuries resulting from secondary crashes

Number of fatal and serious injury secondary crashes

Average EMS response time from the time of call to departure to incident scene

Average EMS on-scene time to in-route to trauma center



EMPHASIS AREA VI / DATA AND DATA SYSTEM IMPROVEMENTS

Without accurate data, evidence-based decisions about the direction of highway safety programs cannot be made. Accurate traffic records data are the backbone of an effective safety management system. The Statewide Traffic Records System (STARS) provides the information necessary for successful highway safety efforts at the city, county, and state levels. STARS is used in problem identification and underlies the establishment of goals and performance measures. It also helps planners allocate resources and evaluate countermeasures. Traffic records data must be timely, accurate, complete, uniform, accessible, and suitable for linking to other data sources.

Three Focus Areas are discussed in this section.

- Data Collection
- Data Accessibility
- System Linkage

Data Collection

The Problem

The identification of data sharing opportunities using state and local data systems should be promoted. The electronic transfer of data from local agencies to state databases ensures the data are timely, accurate and complete. Stakeholders in Missouri's highway safety efforts must encourage the development and implementation of statewide data collection.

Key Strategies

- Collect and increase use of injury surveillance/Crash Outcome Data Evaluation System data to help provide a complete picture of motor vehicle injuries in the State of Missouri
- Strengthen efforts to encourage local law enforcement to electronically submit crash data as soon as possible and provide operational and funding assistance
- Encourage local law enforcement agencies to report DWI arrest information to the Driving While Intoxicated Tracking System (DWITS) database

- Encourage municipal courts to electronically submit adjudication data as soon as possible and provide operational and funding assistance
- Increase the electronic reporting of the charge disposition to the statewide adjudication database
- Increase the availability of data from the state systems to local data users

Performance Measures

Percent of crash reports submitted electronically

Number of agencies submitting crash reports electronically

Number of agencies submitting/entering data into DWITS database

Average number of days from the date of a driver's violation to the date of entry into the state database

Data Accessibility

The Problem

The traffic records user community cannot access the major component data files of the STARS through a single portal. To support this access, the State of Missouri should promote an enterprise architecture and database and develop a traffic records clearinghouse to serve as the gateway for users. The databases in the clearinghouse should be linked in ways that support highway safety analysis. At a minimum, this would include linkage by location, involved persons and events.

Key Strategies

- Continue efforts to automate search and data retrieval from the driver and vehicle files for auto-population of crash and citation forms
- Integrate crash and Missouri Ambulance Reporting System data for use by the Department of Health and Senior Services, the MoDOT Traffic and Highway Safety Division and Fatal Accident Reporting System
- Reduce the number of days from the crash date to the date the crash report is entered to less than 30 days

- Reduce the number of days from the date of a driver's violation to the date the action is entered to 30 days
- Reduce the number of days from the date of an EMS run to the date when the EMS patient care report is entered to 30 days
- Increase the availability of data from the state systems to local data users

Performance Measures

Number of users gaining data from the Missouri State Highway Patrol's crash report website

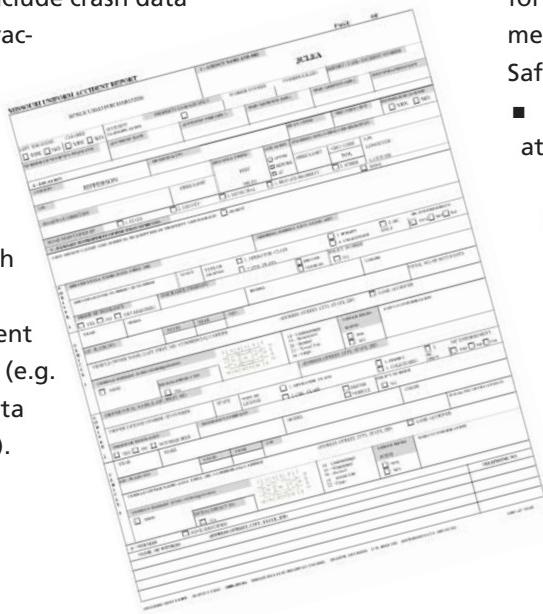
Average number of days from the crash date to the date the crash report is entered into the state database

Average number of days from date of an EMS run to the date when the EMS patient care report is entered (*Data not yet available*)

System Linkage

The Problem

Data should be integrated to provide linkage between components of the traffic records system. Examples of valuable linkages for highway and traffic safety decision making include crash data with roadway characteristics, location, and traffic counts; crash data with driver and vehicle data; and crash data with adjudication data, healthcare treatment and outcome data (e.g. Crash Outcome Data Evaluation System).



Key Strategies

- Develop a strategy to address enhancements and/or modifications to the Traffic Management System for the use of the analytic software tools recommended in the Highway Safety Manual, in particular Safety Analyst
 - Maintain the public roadway system base map at 100 percent

Performance Measures

Linkage of Law Enforcement Traffic Software (LETS) Regional Justice Information Services to the STARS Traffic Management System database – increase the number of data transferred (measured by the number of crash reports)

Glossary

Access Management Planning

Comprehensive systematic control of location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway, in an effort to integrate planning and engineering practices with the transportation and land use decisions that contribute to access outcomes.

Aggressive-Driver Related Crash

Involved a driver who committed one or more of the following violations that contributed to the cause of the crash: speeding; driving too fast for conditions; and/or following too closely.

CDL (Commercial Drivers License)

A CDL allows an individual to legally drive a commercial motor vehicle.

Channelizer Delineators

Temporary traffic control device used to guide traffic or delineate an unsafe condition.

CMV (Commercial Motor Vehicle)

Any vehicle with a gross vehicle weight rating greater than 10,000 pounds (no matter what the vehicle body type), buses or school buses having occupant capacities of nine or more including the driver, and any vehicle that displays a hazardous materials placard.

CODES (Crash Outcome Data Evaluation System)

Program that uses probabilistic linkage methodology to link State person-level crash data to medical outcome datasets such as inpatient, ED (Emergency Department) and EMS (Emergency Medical Services).

Delineator

A retroreflective device mounted on the roadway surface or at the side of the roadway in a series to indicate the alignment of the roadway, especially at night or in adverse weather.

Dynamic Flashing Beacons

A flashing red or yellow light used to capture motorists' attention and warn them about an unusual condition. A dynamic flashing beacon is only flashing when the unusual condition is present.

EMS

A critical component of the emergency and trauma care system that provides response and medical transport to the sick and injured. EMS is a crucial link to survival in the chain of care.

Fatal Crash

Identifies a motor vehicle crash where victim(s) must have died within 30 days of the crash for the crash to be coded in this manner.

Fatality

Identifies a person who dies as the result of a traffic crash; the fatality victim(s) must have died within 30 days as a result of their injuries sustained in the crash.

GDL (Graduated Drivers License)

Missouri's GDL law requires that all first-time drivers between 15 and 18 years old complete a period of driving with a licensed driver (instruction permit), and restricted driving (intermediate license), before being issued a full driver license.

GVWR (Gross Vehicle Weight Rating)

The value specified by the manufacturer as the loaded weight of a single vehicle.

HMV (Hazardous Moving Violation)

Includes any traffic violations of a potentially hazardous nature including, but not limited to, speeding, DWI, Careless and Imprudent, stop sign/signal violation, following too closely, failure to signal.

ICE (In Case of Emergency)

Enables first responders to identify victims and reach their

emergency contacts; people enter the information into their mobile phone using the name ICE.

ITE (Institute of Transportation Engineers) Standards

ITE is one of five "standards development organizations" designated by the U.S. Department of Transportation to develop Intelligent Transportation Systems standards.

Occupant

A driver and/or passenger(s) on or in a motor vehicle.

Open Roads Philosophy

Responders from all agencies must first ensure their own safety and the safety and security of any crash victims. Once this is accomplished, their top priority should be to reduce congestion and the high risk of secondary crashes by getting the roadway open as soon as practical without compromising scene safety.

Optical Speed Bars

A series of lines painted at decreasing intervals on the road that give drivers the illusion that the vehicle is moving faster than it really is; designed to get drivers to slow down.

PBT (Preliminary Breath Test)

A breath analyzer device used to estimate blood alcohol content (BAC) from a breath sample taken prior to arrest.

Pedestrian Hybrid Beacon

Formerly known as HAWK (High-Intensity Activated CrossWalk Beacon) is a traffic signal used to stop road traffic and allow pedestrians to cross safely. The purpose of the device is to allow protected pedestrian crossings, stopping road traffic only when pedestrians are present.

Rumble Strips

Rumble strips alert drivers by causing a vibration and rumbling sound, transmitted through the wheels into the car body. A series of rumble strips is usually either applied in the direction of travel along an edge- or centerline to alert drivers when they drift from their lane.

Rumble Stripes

Rumble stripes are rumble strips that have pavement marking material (i.e. paint) placed over them. This increases the visibility of the pavement marking when the road is wet.

Safety Edge

A 30°–35° asphalt wedge that is placed/formed along each side of the roadway. The wedge ties the existing shoulder into the roadway and allows a vehicle to reenter the roadway safely.

Serious Injury

Such an injury is severe enough in nature that the victim must be transported to the hospital or sustains a permanent, serious injury from the crash.

STEP (Selective Traffic Enforcement Programs)

Law enforcement officers conduct saturation enforcement in high-crash locations or where large numbers of hazardous moving violations occur.

TACT (Ticketing Aggressive Cars & Trucks)

Law enforcement officers conduct saturation enforcement in high-crash locations where large numbers of hazardous moving violations occur involving commercial motor vehicles and passenger vehicles.

Transverse Rumble Strips

Transverse rumble strips are rumble strips that are applied across the direction of travel to warn drivers that they will be required to take action (stop ahead, turn ahead, etc.).

VMT (Vehicle Miles Traveled)

The total number of miles driven by vehicles within a given time period and geographic area; influenced by factors such as population, the number of vehicles per household, the number of vehicle trips per day and distance traveled.

PERFORMANCE ZONE

PERFORMANCE MEASUREMENT AND MANAGEMENT

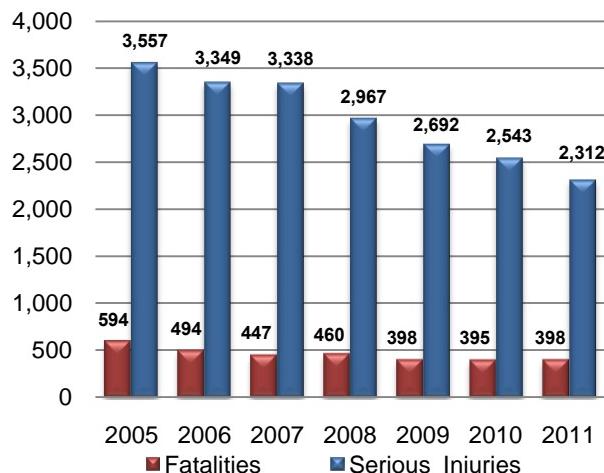
Performance measurement is the use of statistical evidence to determine progress toward our Blueprint goal to reducing fatalities and serious injuries. The following performance measures are based on data from 2005-2011 and tell a story about the progress being made to successfully implement strategies outlined in the Blueprint. To monitor success of our performance measures, an annual status report will be presented to the Executive Committee of the Missouri Coalition of Roadway Safety and the corresponding regional coalitions.

Emphasis Area I / Serious Crash Types

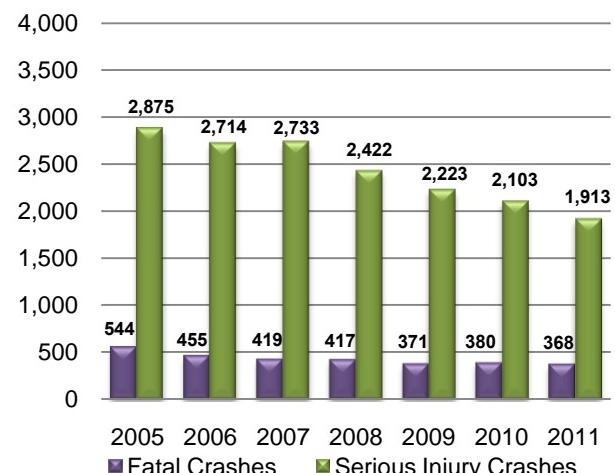
RUN-OFF-ROAD INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries

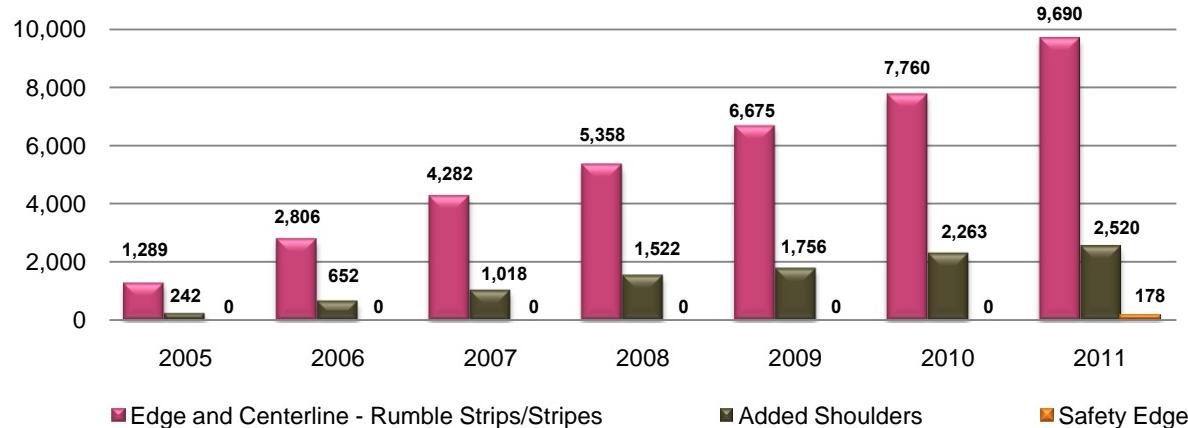


Fatal and Serious Injury Crashes



- Number of edge and centerline miles with rumble strips/stripes
- Number of miles of added shoulders
- Number of miles of Safety EdgeSM

Cumulative Miles of Roadway Improvement



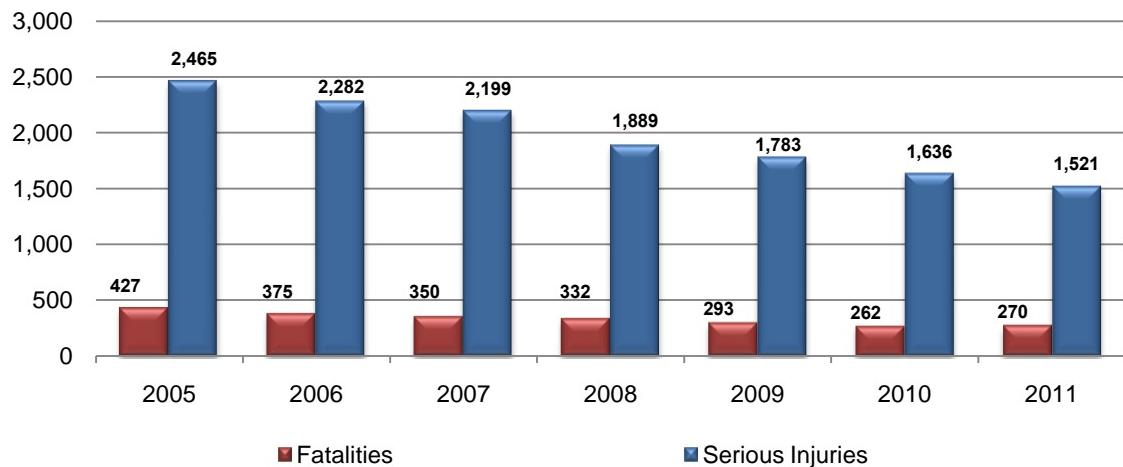
* Run-off-road crashes are categorized in relation to the roadway at the time of the first harmful event.

Emphasis Area I / Serious Crash Types

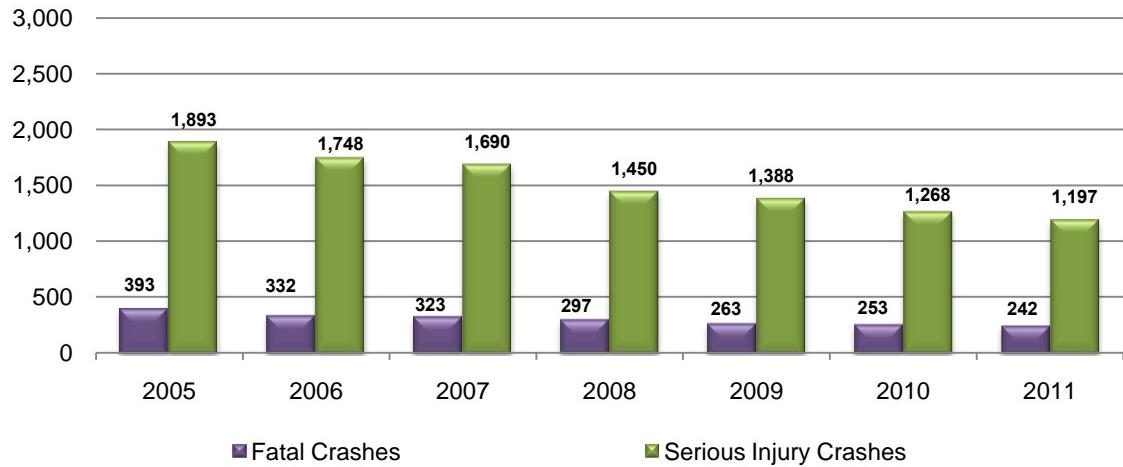
HORIZONTAL CURVE INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes

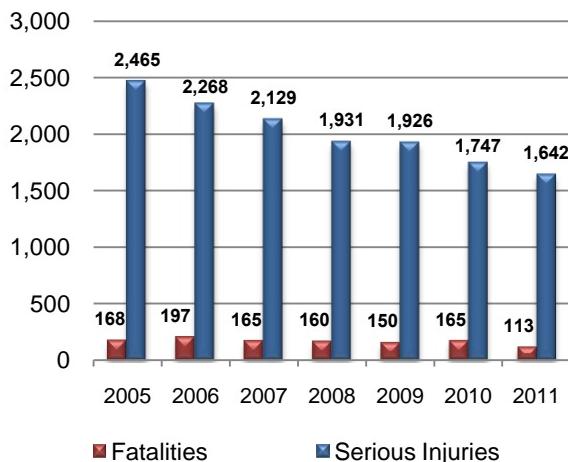


Emphasis Area I / Serious Crash Types

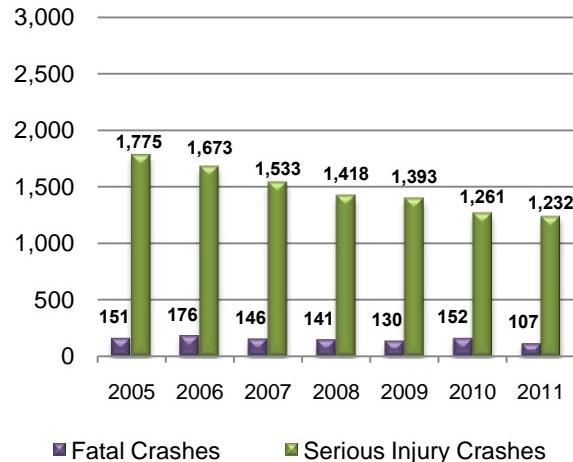
INTERSECTION INVOLVED (SIGNALIZED & UNSIGNALIZED)

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries

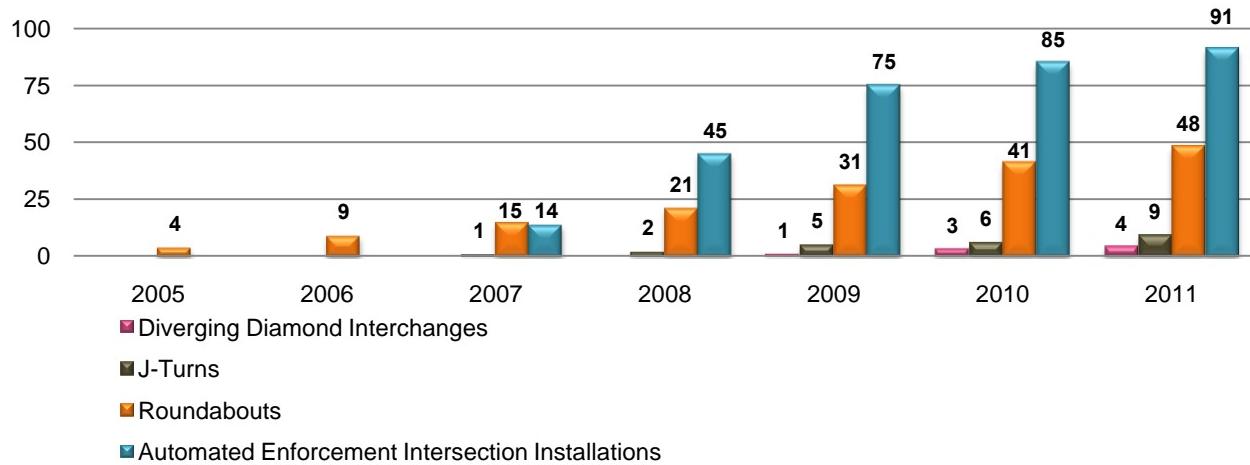


Fatal and Serious Injury Crashes



- Number of innovative intersection improvements (roundabouts, J-turns, Diverging Diamond)
- Number of automated enforcement intersection installations *

Intersection Improvements - Cumulative Totals



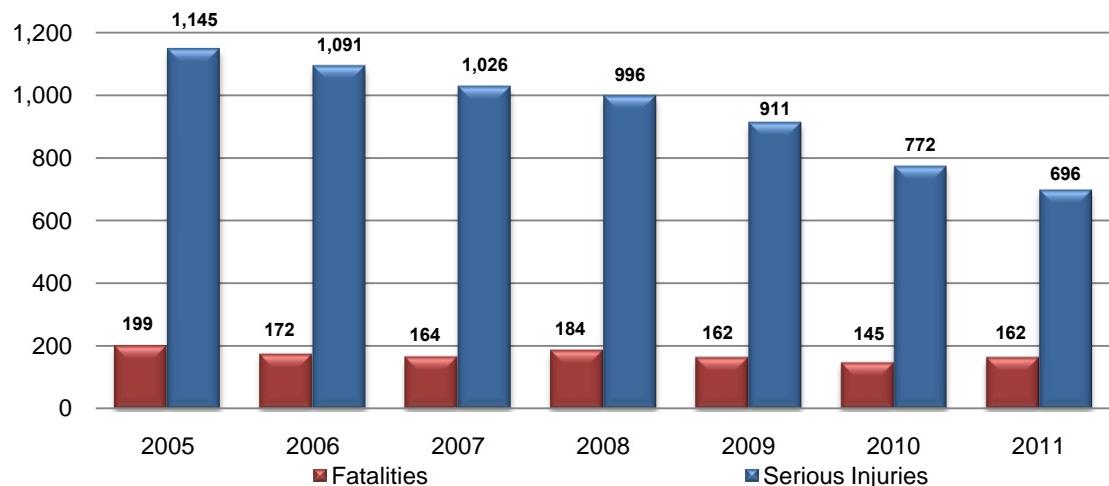
*City Intersections Only

Emphasis Area I / Serious Crash Types

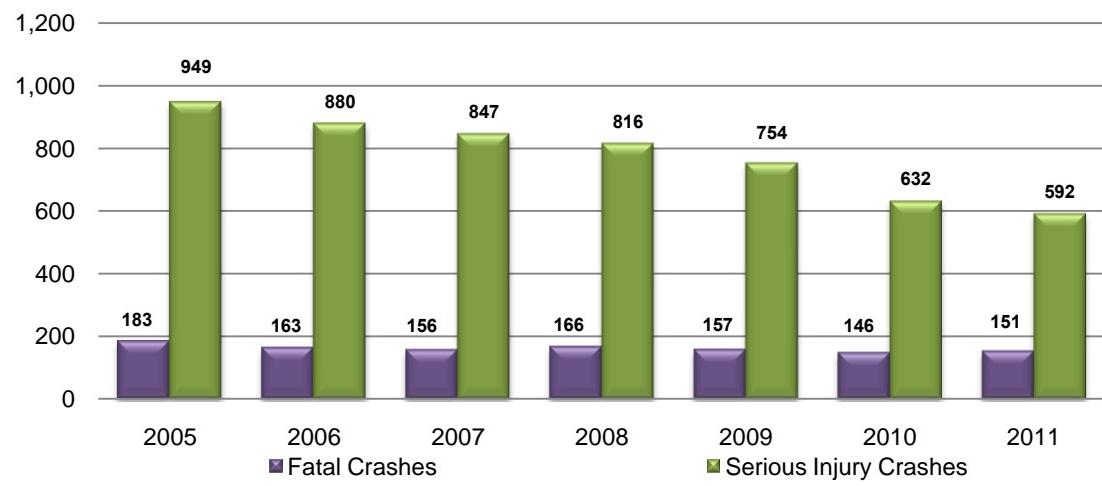
COLLISIONS WITH TREES OR UTILITY POLES INVOLVED

- Number of fatalities and serious injuries *
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes



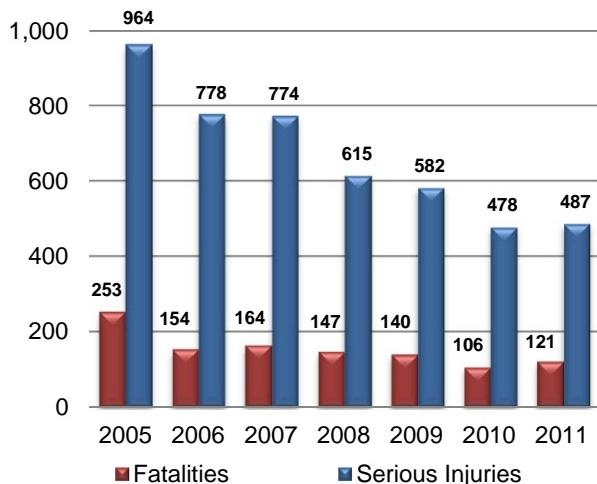
* Fatalities and serious injuries are only those people killed or seriously injured when colliding with trees or utility poles.

Emphasis Area I / Serious Crash Types

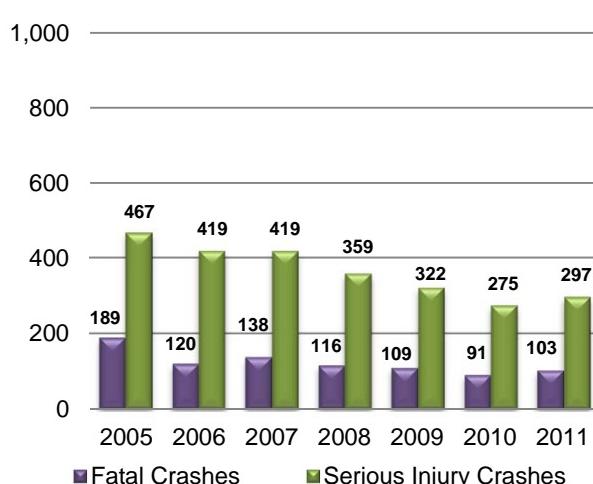
HEAD-ON INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries

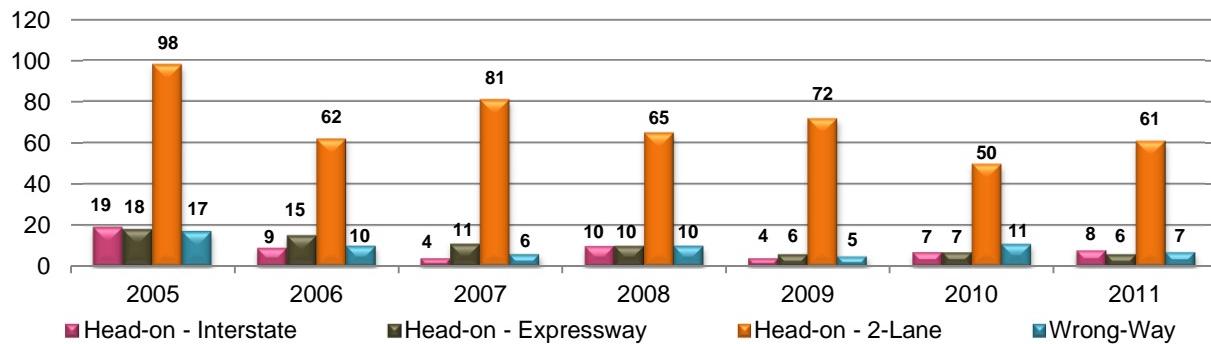


Fatal and Serious Injury Crashes

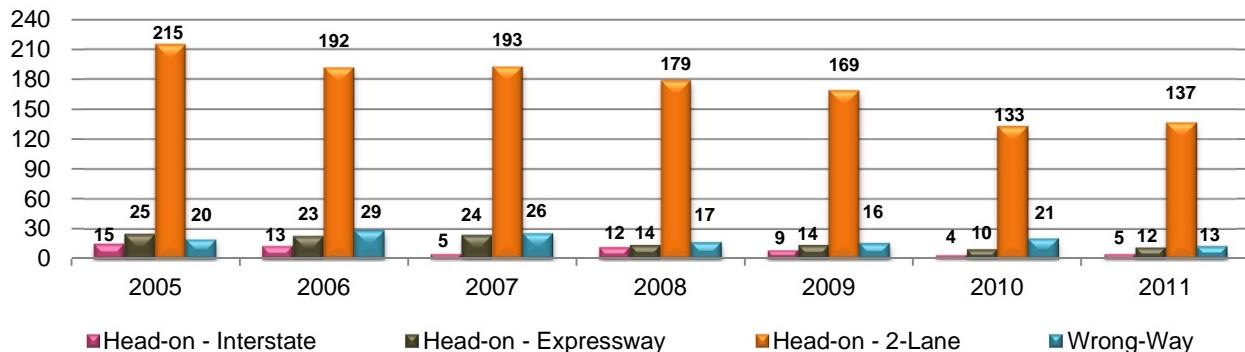


- Number of fatal and serious injury head-on / wrong-way crashes by roadway type (interstate, expressway and two-lane)

Fatal Crashes



Serious Injury Crashes

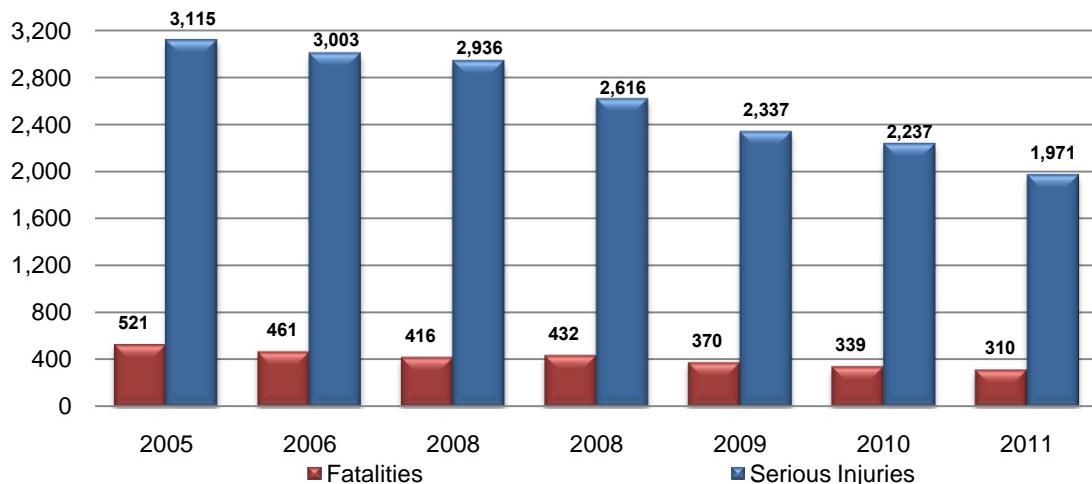


Emphasis Area II / High Risk Drivers and Unrestrained Occupants

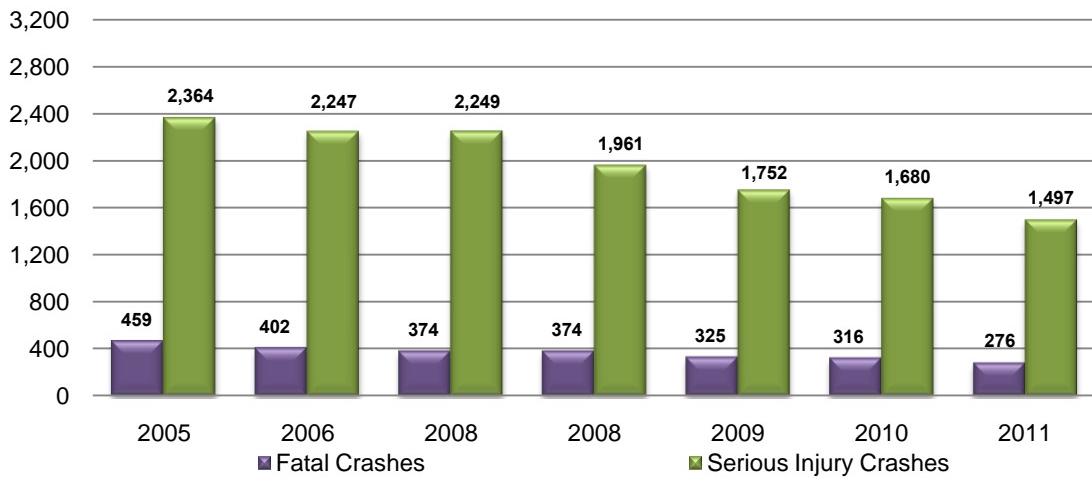
AGGRESSIVE DRIVER INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes *

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes



Factors used to determine aggressive driving include: exceeding speed limit, too fast for conditions, and/or following too close.

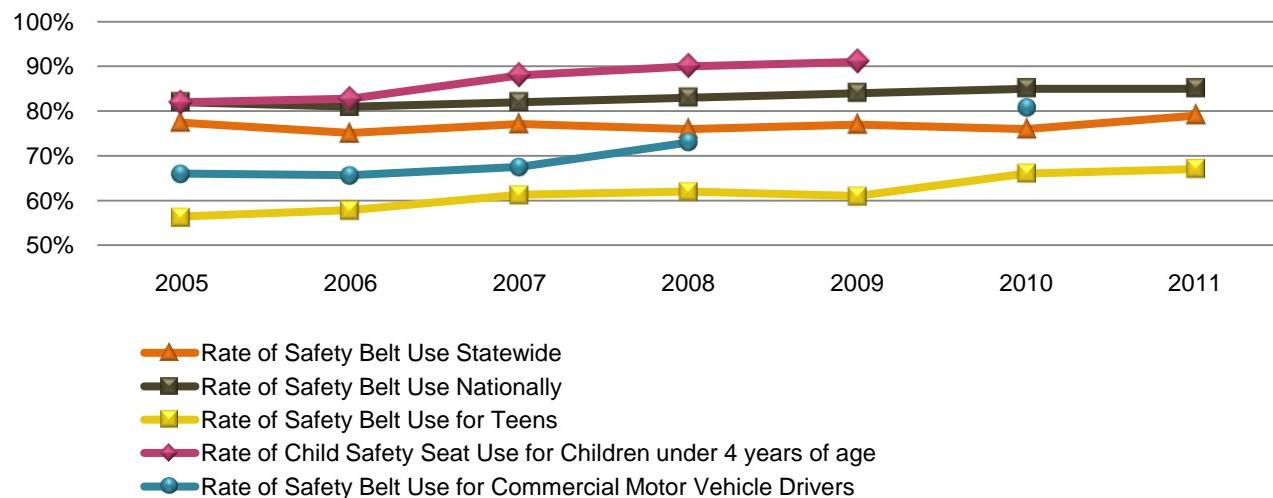
* Fatal and serious injury crashes involved at least one aggressive driver.

Emphasis Area II / High Risk Drivers and Unrestrained Occupants

UNRESTRAINED DRIVERS AND OCCUPANTS

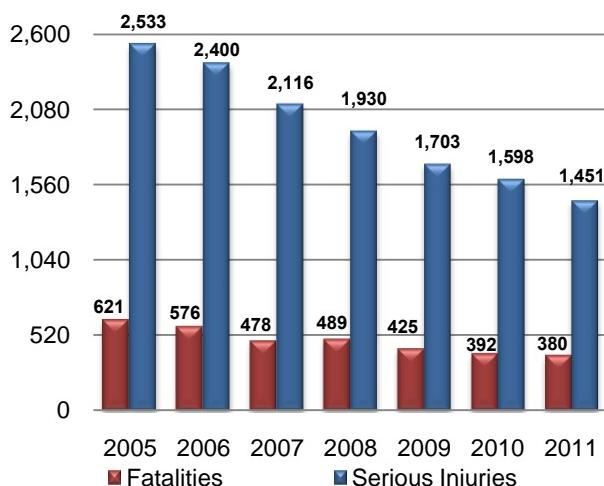
- Rate of safety belt use statewide
- Rate of safety belt use nationally
- Rate of safety belt use for teens
- Rate of child safety seat use for children under four years of age
- Rate of safety belt use for commercial motor vehicle drivers

Rate of Safety Belt Use by Group Type

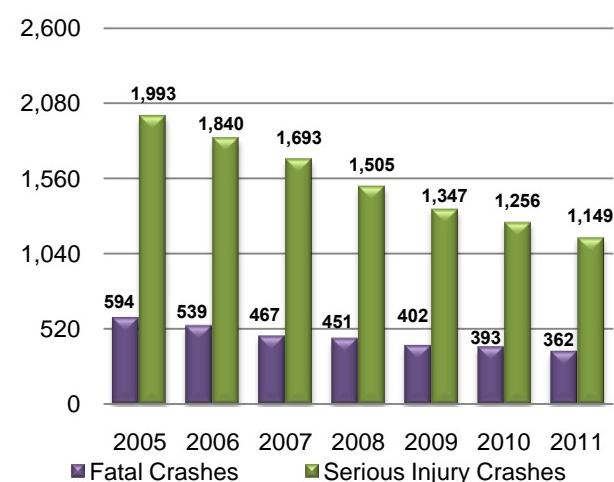


- Number of fatalities and serious injuries *
- Number of fatal and serious injury crashes **

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes

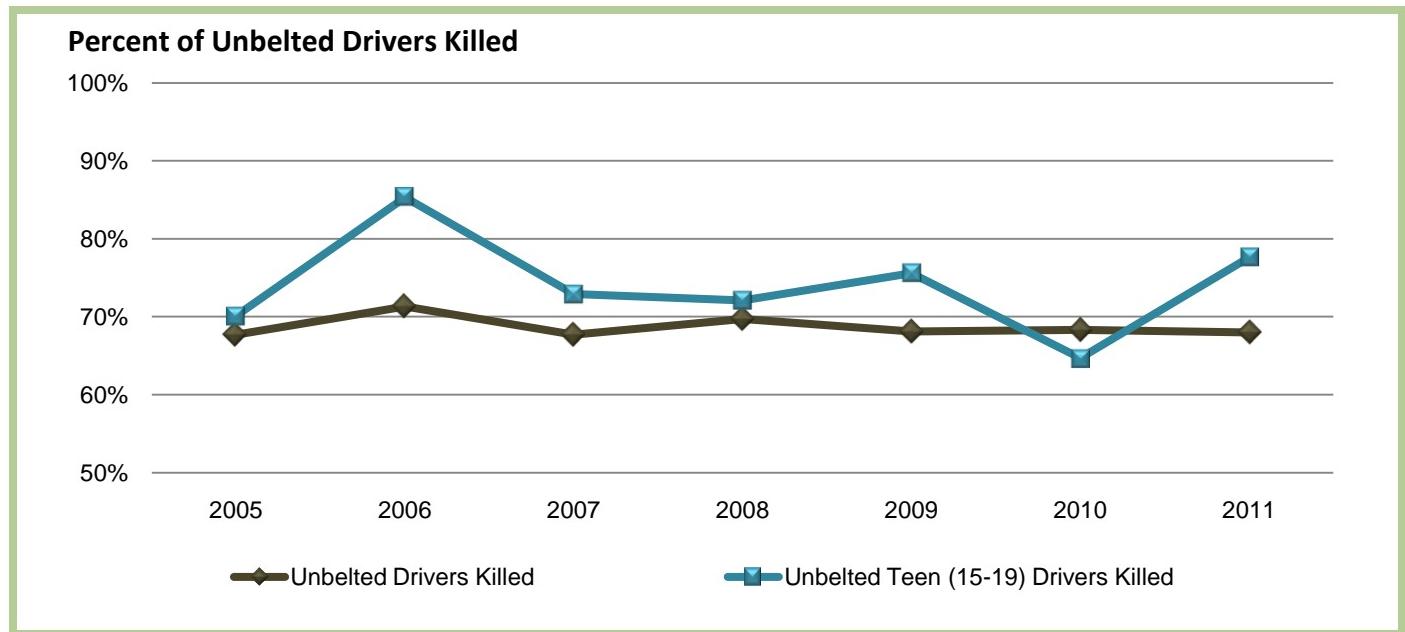


*Includes unrestrained occupants of vehicles subject to Missouri's current safety belt law.

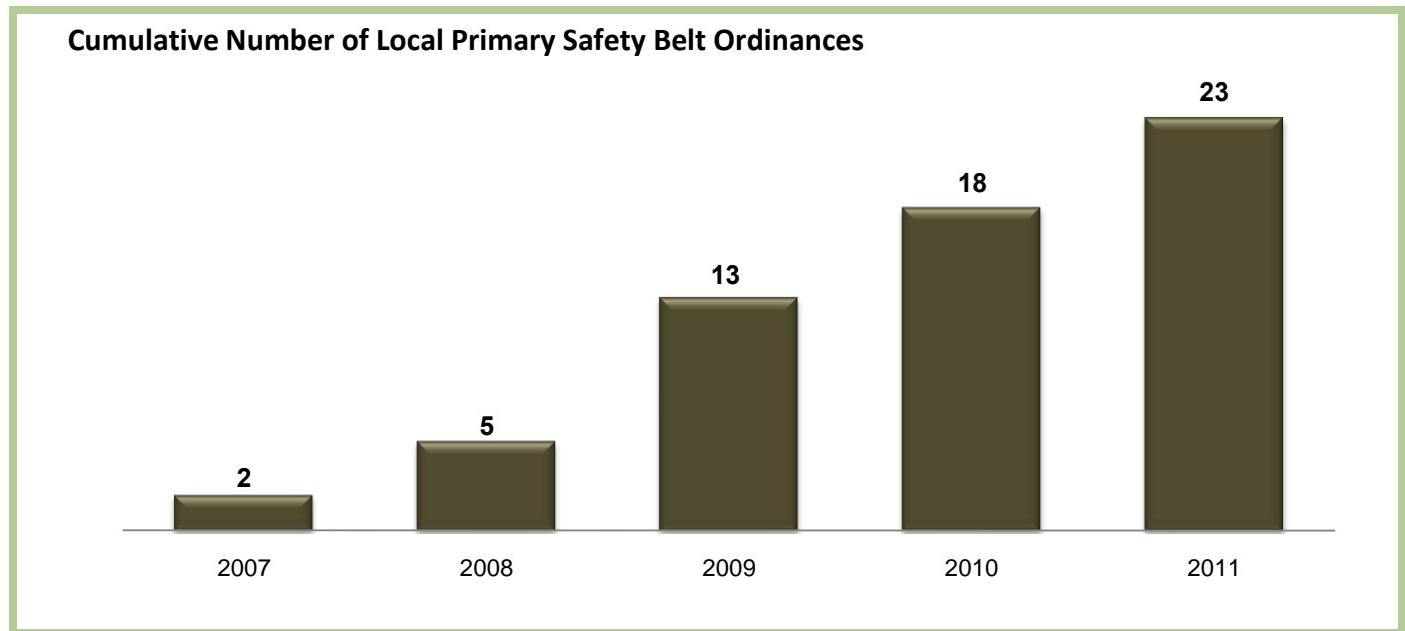
**Fatal and serious injury crashes involved at least one vehicle occupant who was killed or seriously injured without their safety belt.

Emphasis Area II / High Risk Drivers and Unrestrained Occupants

- Percent of unbelted drivers killed in crashes by group type



- Number of Local Primary Safety Belt Ordinances

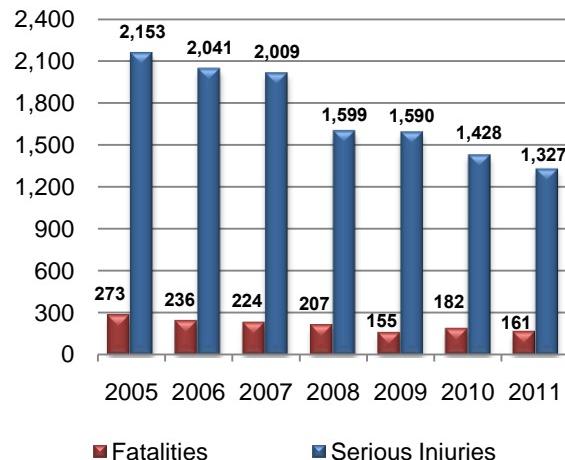


Emphasis Area II / High Risk Drivers and Unrestrained Occupants

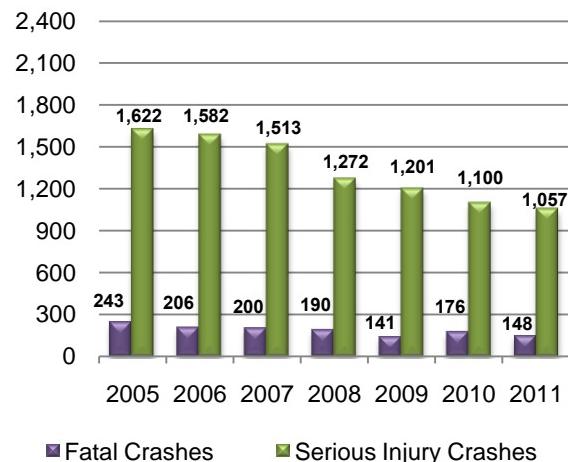
DISTRACTED OR DROWSY DRIVER INVOLVED

- Number of fatalities and serious injuries
- Number of fatal or serious injury crashes *

Fatalities and Serious Injuries

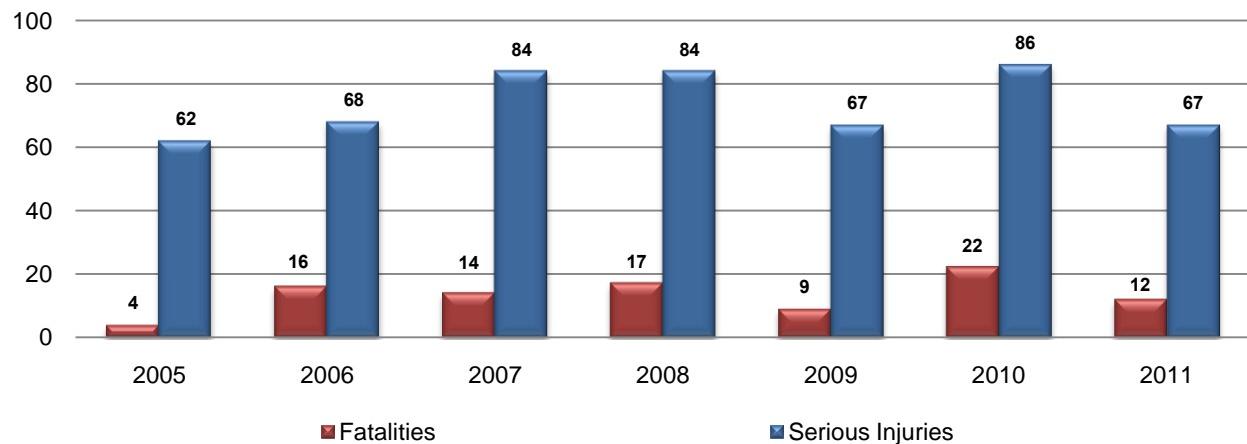


Fatal and Serious Injury Crashes



- Number of fatalities and serious injuries involving a driver using a cell phone

Distracted Driver with Cell Phone Involved



- Number of fatalities and serious injuries involving a drowsy driver - DATA NOT YET AVAILABLE

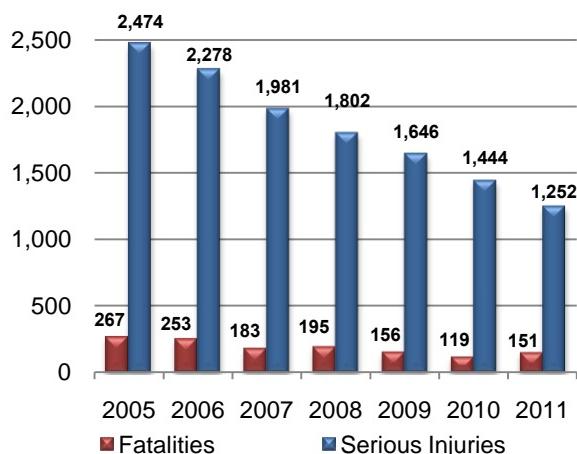
*Fatal and serious injury crashes involved at least one distracted driver.

Emphasis Area II / High Risk Drivers and Unrestrained Occupants

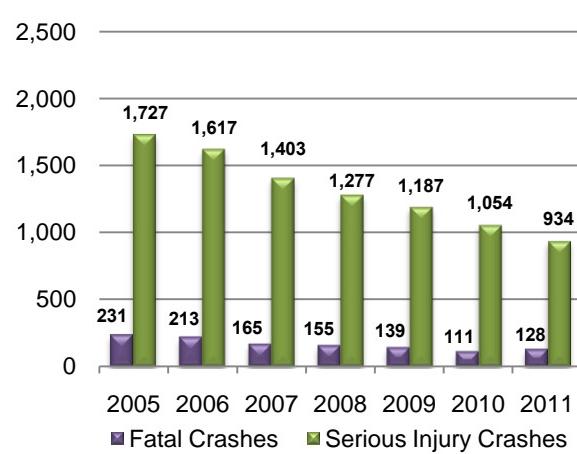
YOUNG DRIVERS (15-20 YEARS OF AGE) INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes

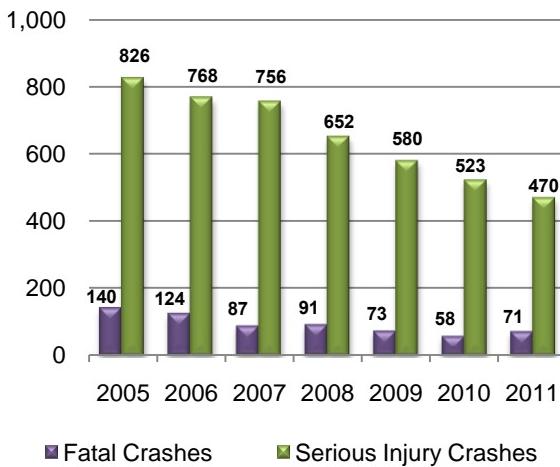


- Number of young aggressive driver-involved fatal and serious injury crashes*
- Number of young run-off-road driver involved fatal and serious injury crashes*

Aggressive Driver (15-20 Years of Age)



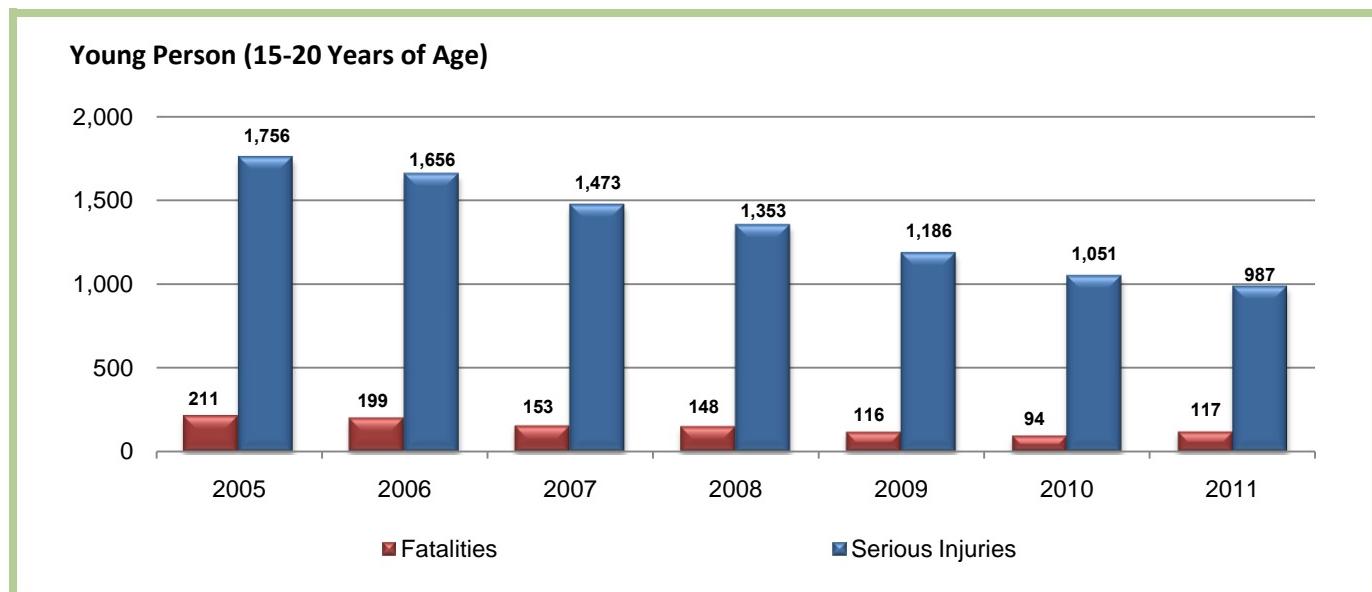
Run-Off-Road Driver (15-20 Years of Age)



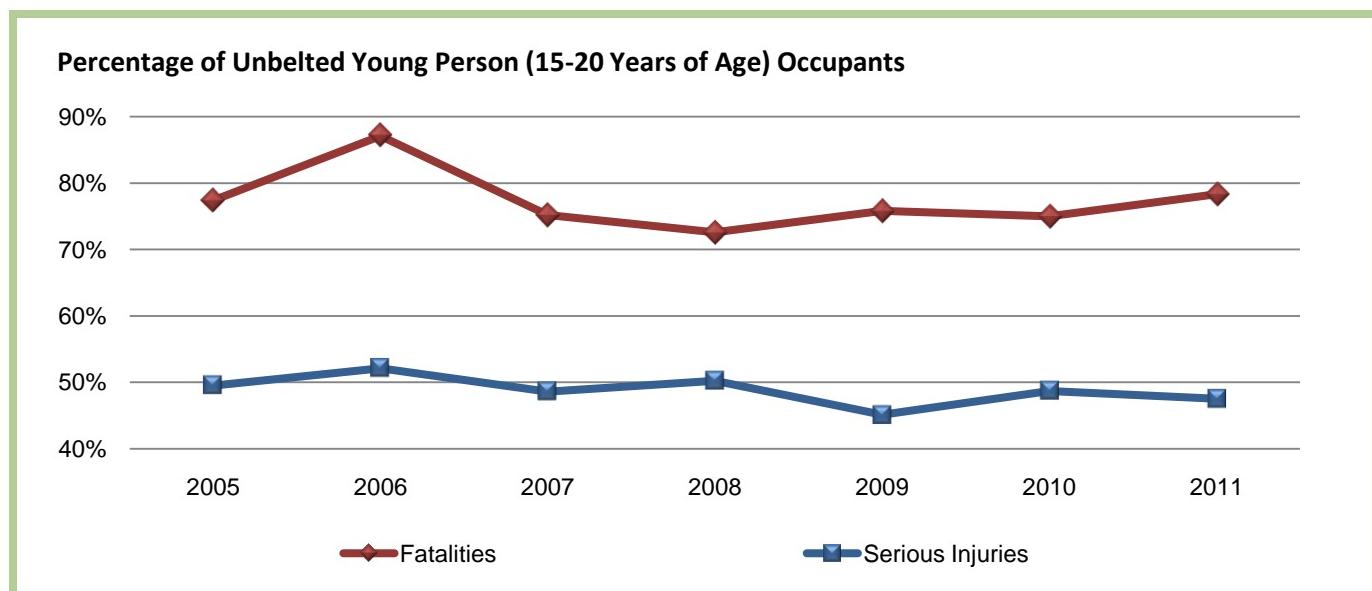
* Fatal and serious injury crashes involved at least one driver 15-20 years of age.

Emphasis Area II / High Risk Drivers and Unrestrained Occupants

- Number of young person (15-20 years of age) fatalities and serious injuries resulting from crashes



- Percent of unbelted young person (15-20 years of age) occupant fatalities and serious injuries

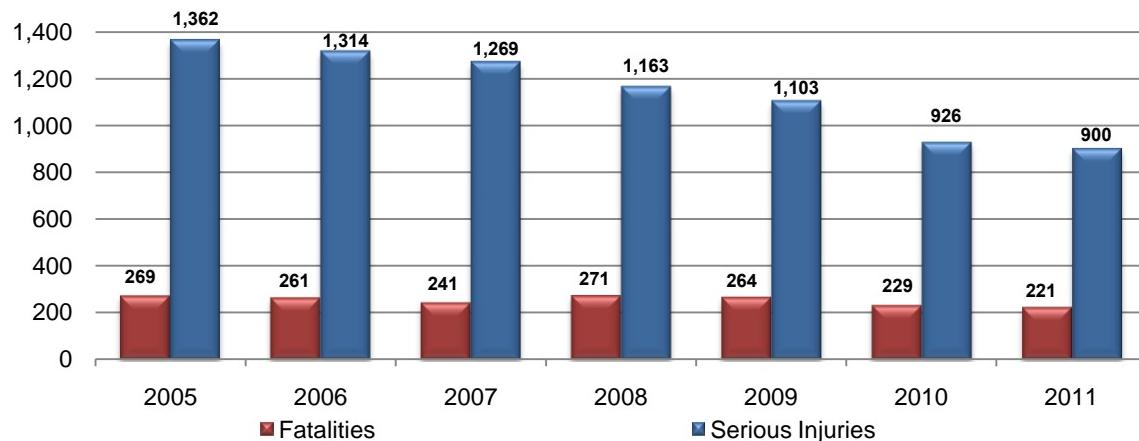


Emphasis Area II / High Risk Drivers and Unrestrained Occupants

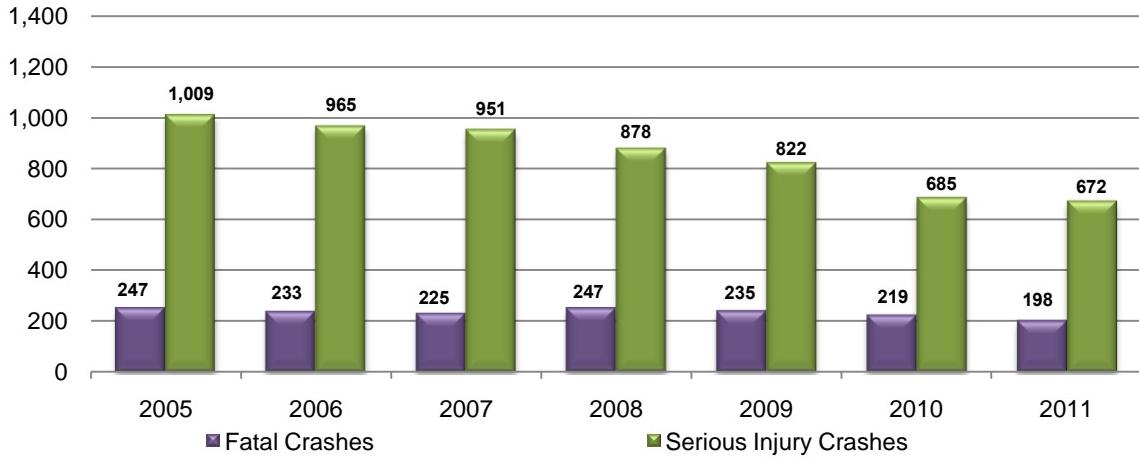
SUBSTANCE-IMPAIRED* DRIVER INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes**

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes

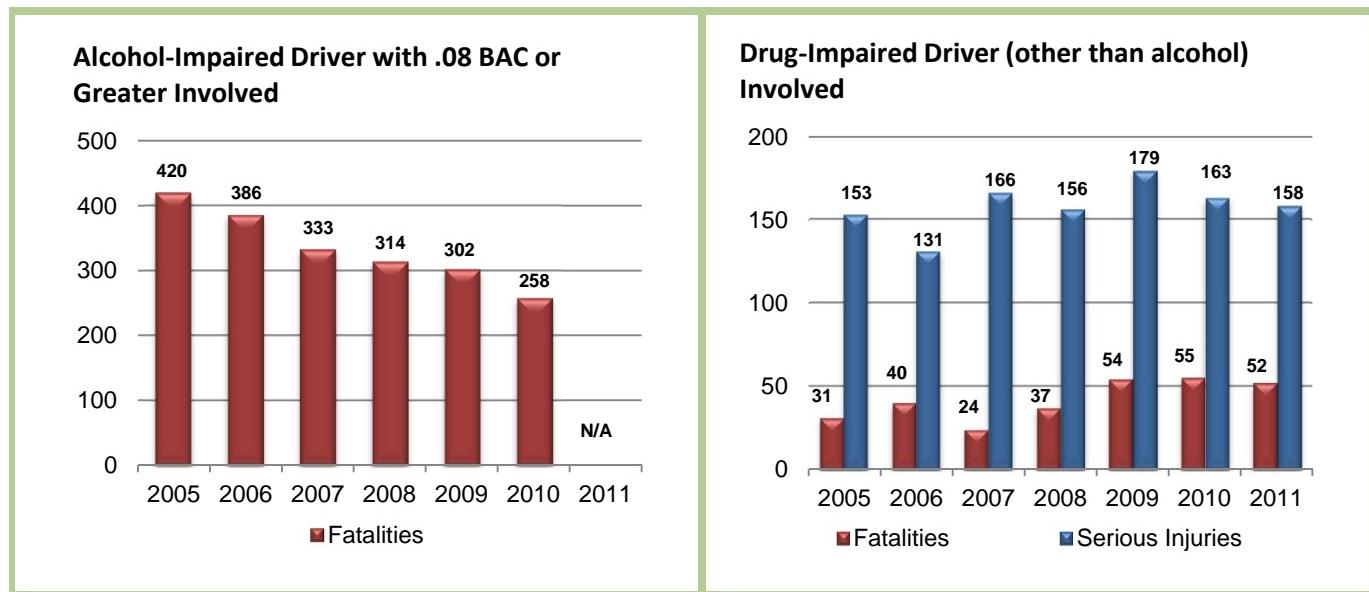


*Substance-impaired includes alcohol and/or any other drugs.

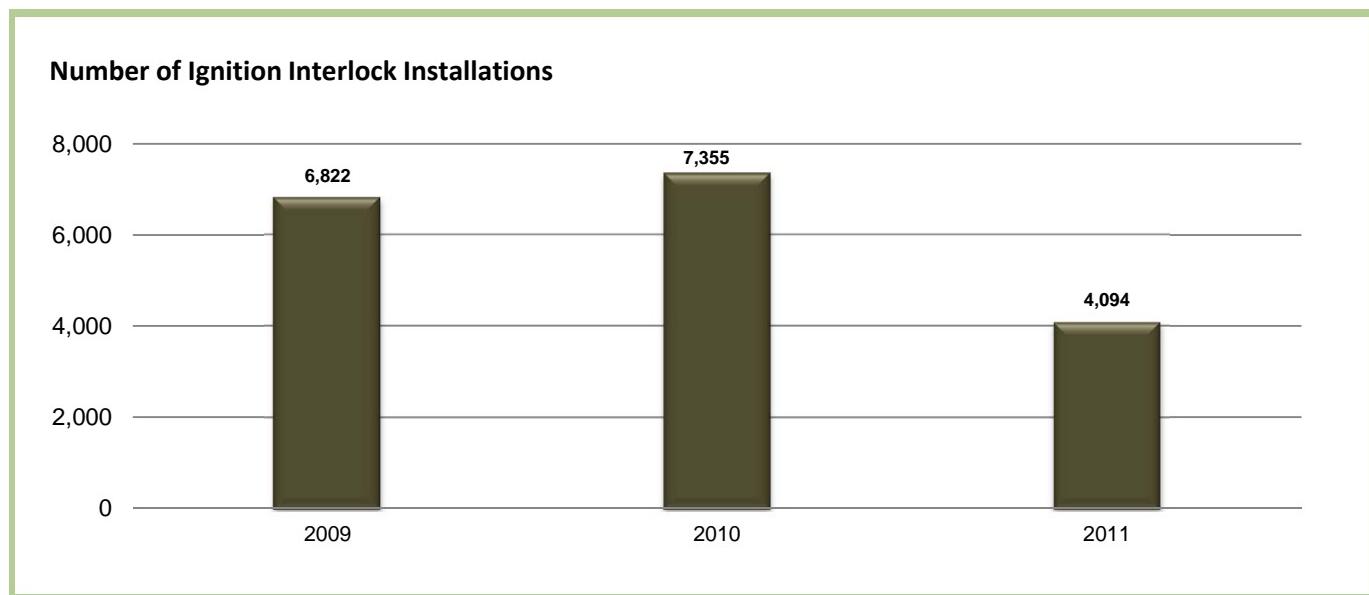
** Fatal and serious injury crashes involved at least one substance-impaired driver.

Emphasis Area II / High Risk Drivers and Unrestrained Occupants

- Number of fatalities involving an alcohol-impaired driver with .08 BAC or greater *
- Number of fatalities and serious injuries involving a drug-impaired driver (other than alcohol)



- Number of ignition interlock installations **



*Data was retrieved from the Fatality Analysis Reporting System (FARS) website.

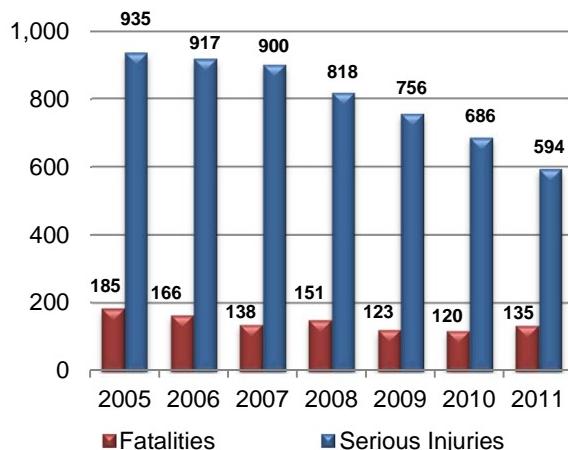
**Data provided from the Missouri Department of Revenue. Number of ignition interlock installations varies based on number of DWI convictions each year.

Emphasis Area II / High Risk Drivers and Unrestrained Occupants

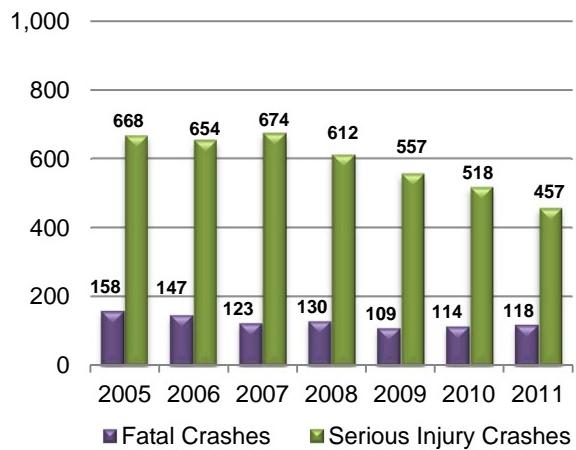
UNLICENSED, REVOKED OR SUSPENDED DRIVER INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes



- Number of fatal and serious injury crashes involving an unlicensed motorcycle operator*
- Number of fatal and serious injury crashes involving an unlicensed 15 to 20-year old driver*

Unlicensed Motorcycle Operator Involved



Unlicensed Young Driver (15-20) Involved



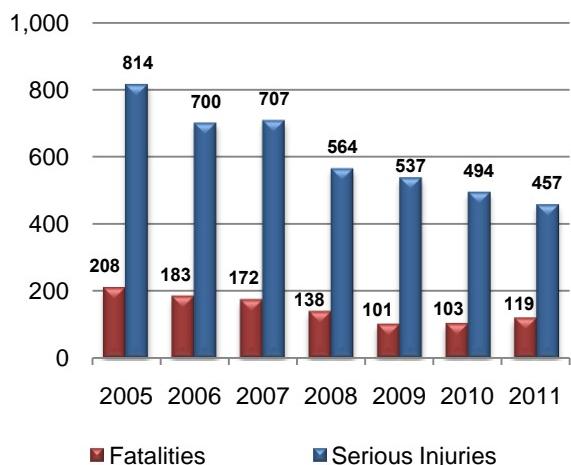
* Fatal and serious injury crashes involved at least one unlicensed, revoked or suspended driver.

Emphasis Area III / Special Vehicles

COMMERCIAL MOTOR VEHICLE (CMV) INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries

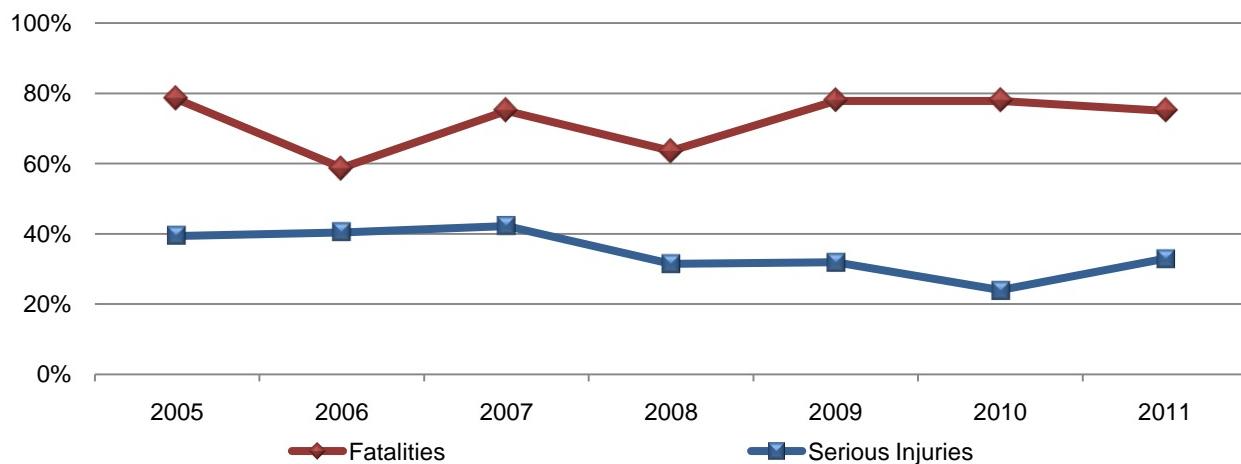


Fatal and Serious Injury Crashes



- Percentage of unbelted CMV driver fatalities and serious injuries

Percentage of Unbelted CMV Drivers



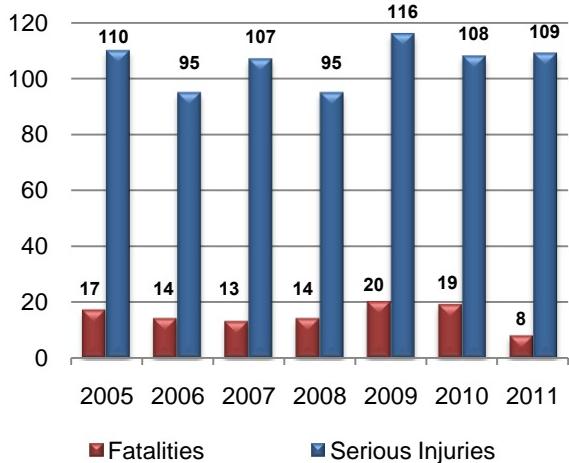
* Fatal and serious injury crashes involved at least one CMV.

Emphasis Area III / Special Vehicles

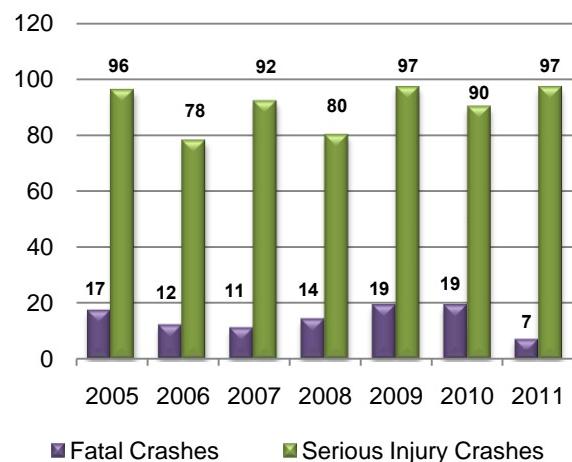
ALL-TERRAIN VEHICLES (ATV) INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries

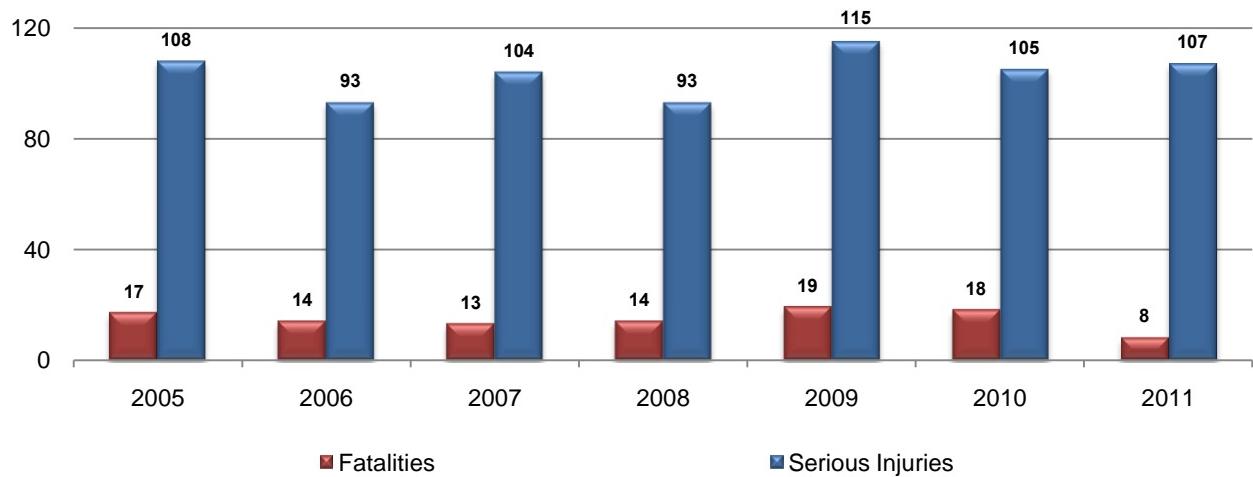


Fatal and Serious Injury Crashes



- Number of ATV rider traffic-related fatalities and serious injuries

ATV Riders



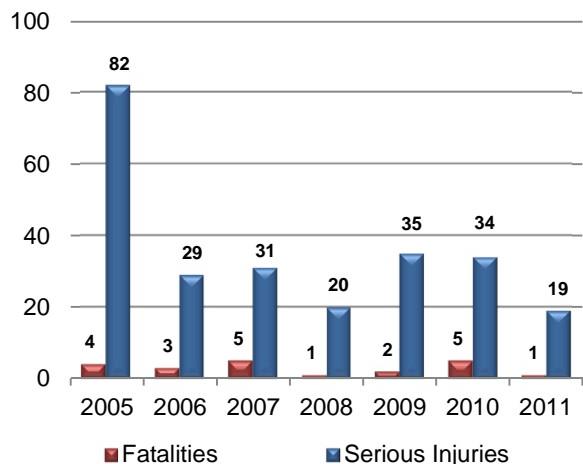
* Fatal and serious injury crashes involved at least one ATV.

Emphasis Area III / Special Vehicles

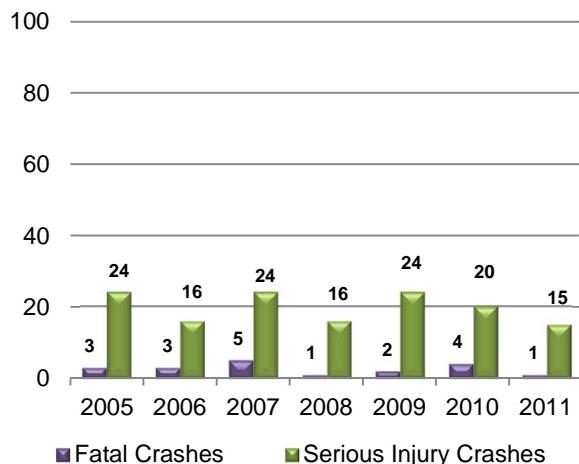
SCHOOL BUS / SCHOOL BUS SIGNAL INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries

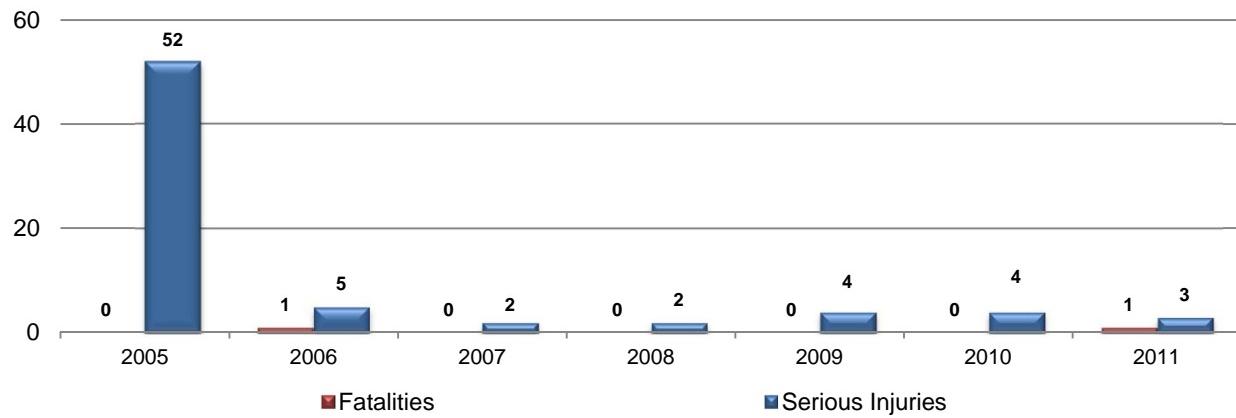


Fatal and Serious Injury Crashes



- Number of children (less than 13 years of age) killed or seriously injured due to crashes involving school buses / school bus signals

Children <13 Years of Age Killed or Seriously Injured in Crashes Involving a School Bus or School Bus Signal



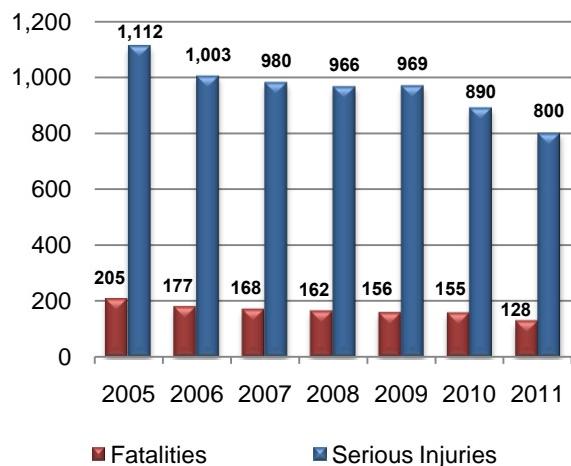
* Fatal and serious injury crashes involved either a school bus or school bus signal.

Emphasis Area IV / Vulnerable Roadway Users

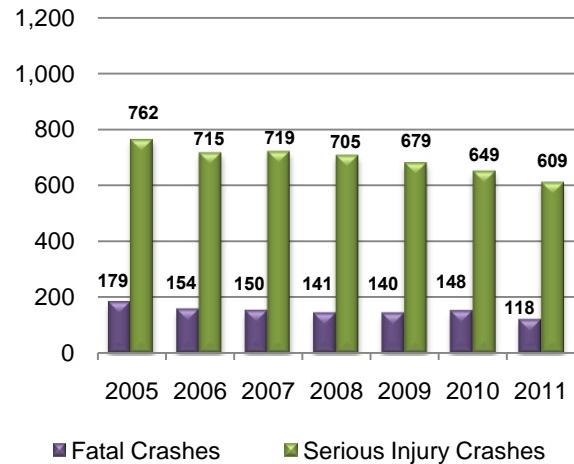
OLDER DRIVERS (65 YEARS OF AGE OR OLDER) INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes*

Fatalities and Serious Injuries

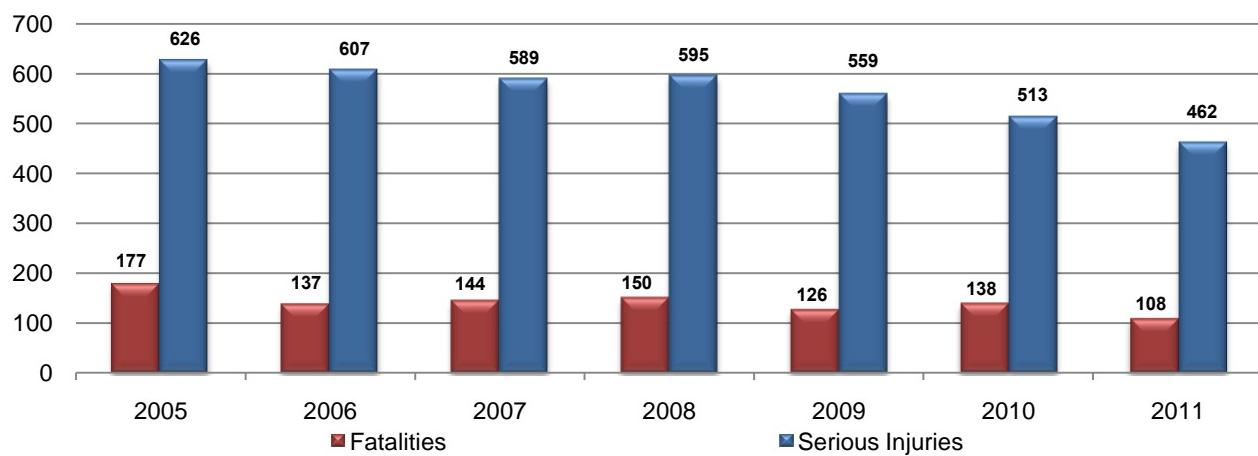


Fatal and Serious Injury Crashes



- Number of older occupant fatalities and serious injuries

Older Occupants (65 Years of Age or Older)



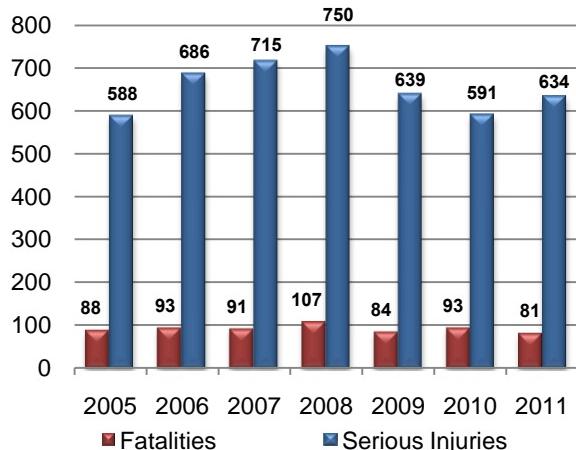
* Fatal and serious injury crashes involved at least one driver 65 years of age or older.

Emphasis Area IV / Vulnerable Roadway Users

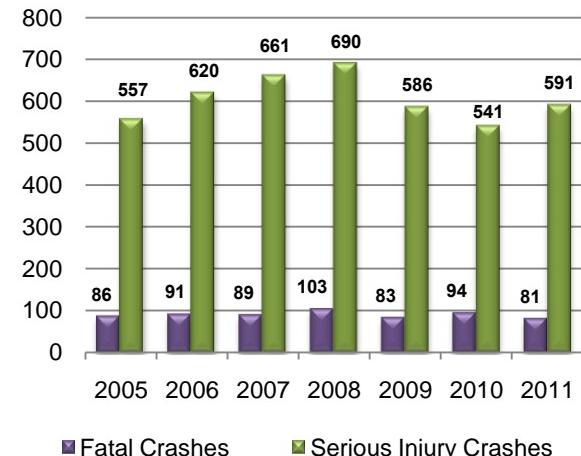
MOTORCYCLISTS INVOLVED

- Number of fatalities and serious injuries*
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries

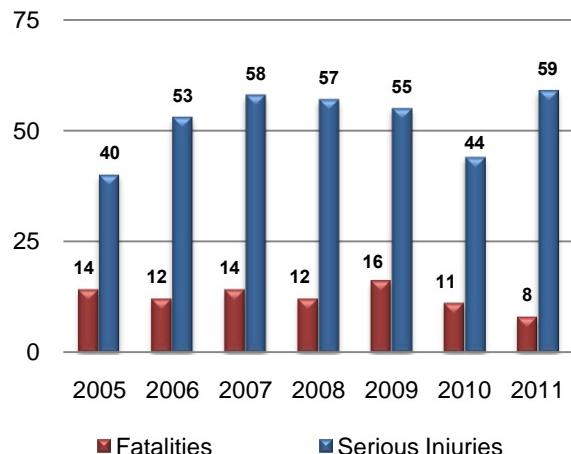


Fatal and Serious Injury Crashes

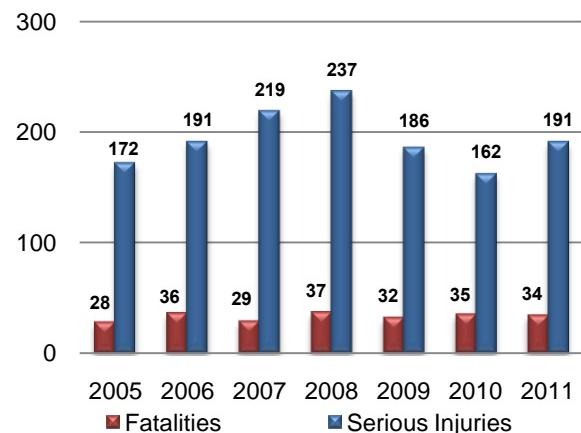


- Number of unhelmeted motorcycle rider fatalities and serious injuries
- Number of fatalities and serious injuries involving an improperly/unlicensed motorcycle operator

Unhelmeted Motorcycle Rider



Improperly/Unlicensed Motorcycle Operator Involved



- Number of fatalities and serious injuries in which motorcycle riders are wearing non-compliant DOT approved helmets - DATA NOT YET AVAILABLE

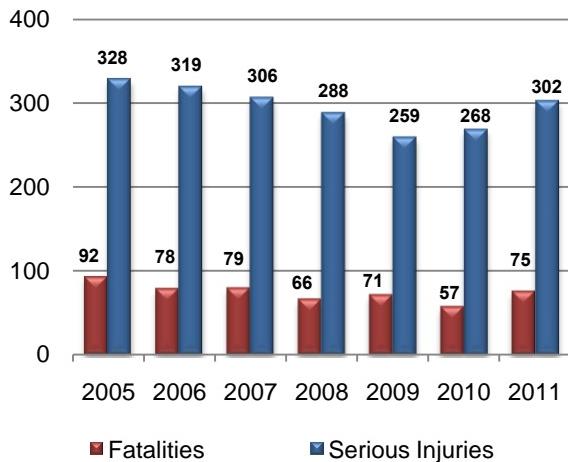
* Fatalities and serious injuries for motorcycles include drivers and passengers of motorcycles.

Emphasis Area IV / Vulnerable Roadway Users

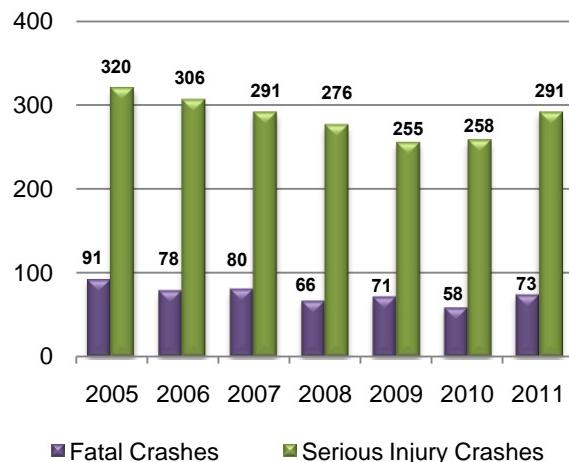
PEDESTRIANS INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries

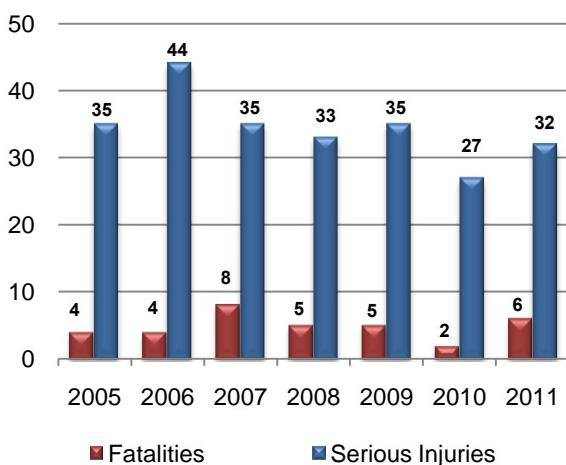


Fatal and Serious Injury Crashes

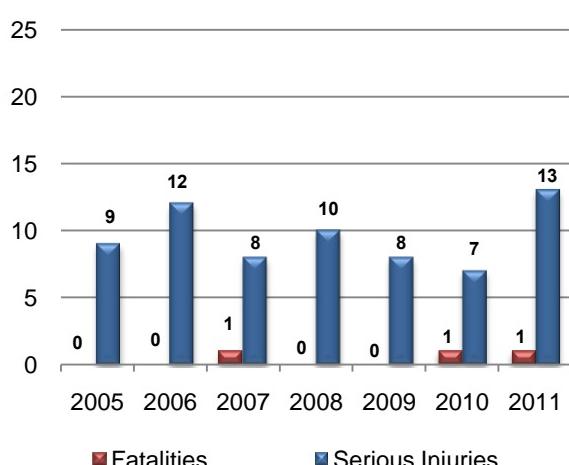


- Number of pedestrian fatalities and serious injuries occurring at signalized intersections
- Number of pedestrian fatalities and serious injuries occurring at unsignalized intersections

Pedestrians at Signalized Intersections



Pedestrians at Unsignalized Intersections

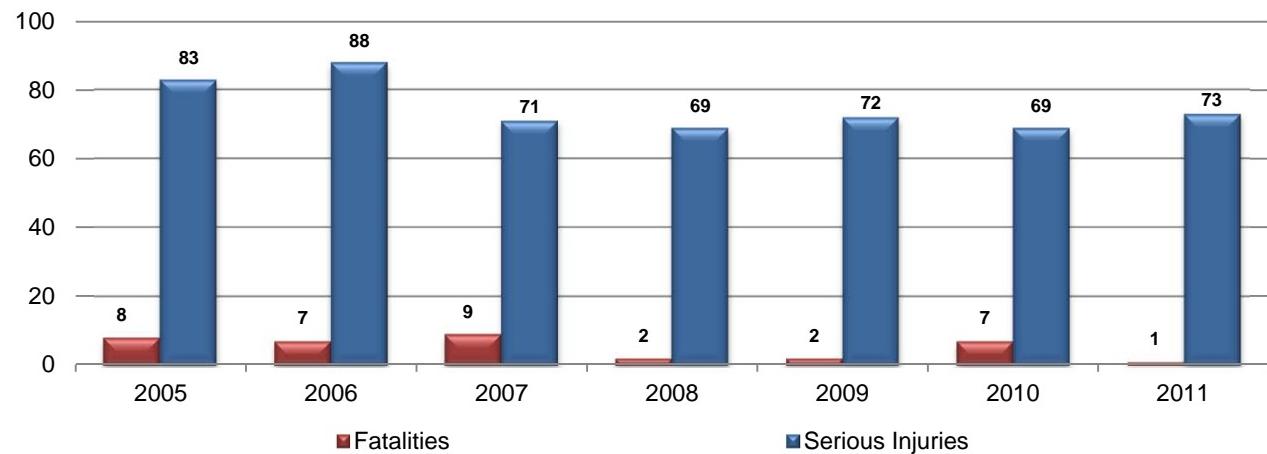


Emphasis Area IV / Vulnerable Roadway Users

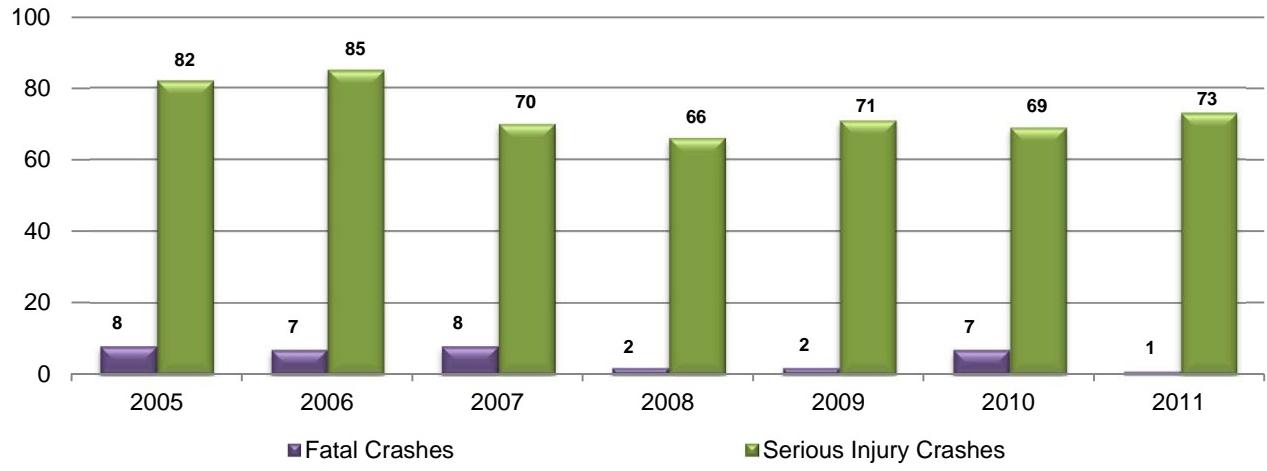
BICYCLISTS INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes

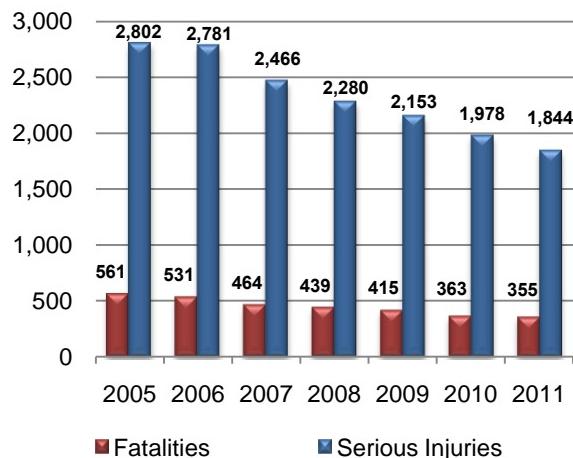


Emphasis Area V / Special Roadway Environments

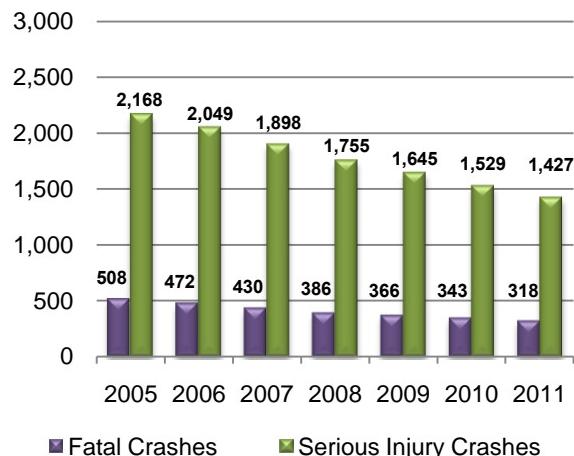
NIGHTTIME DRIVING INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries

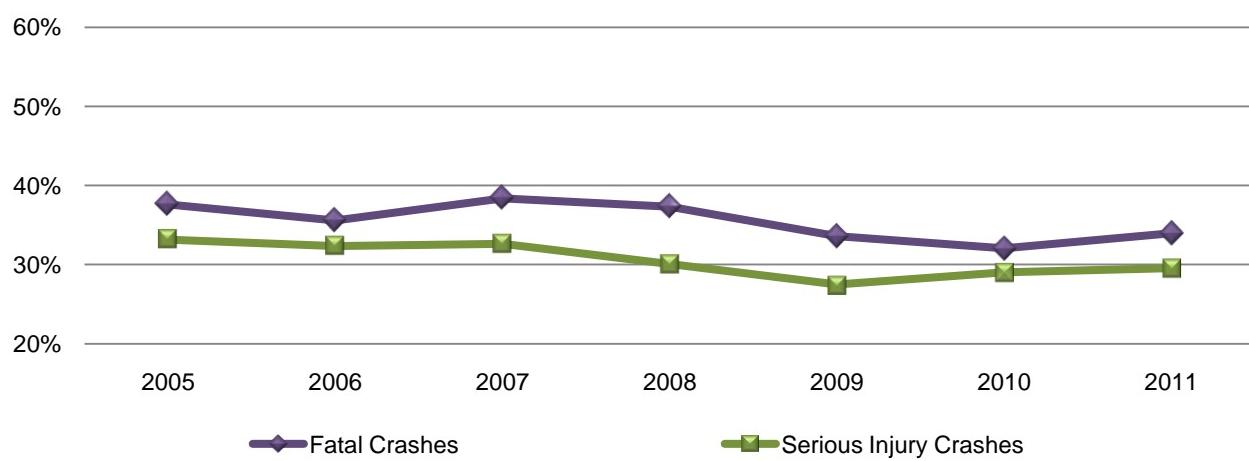


Fatal and Serious Injury Crashes



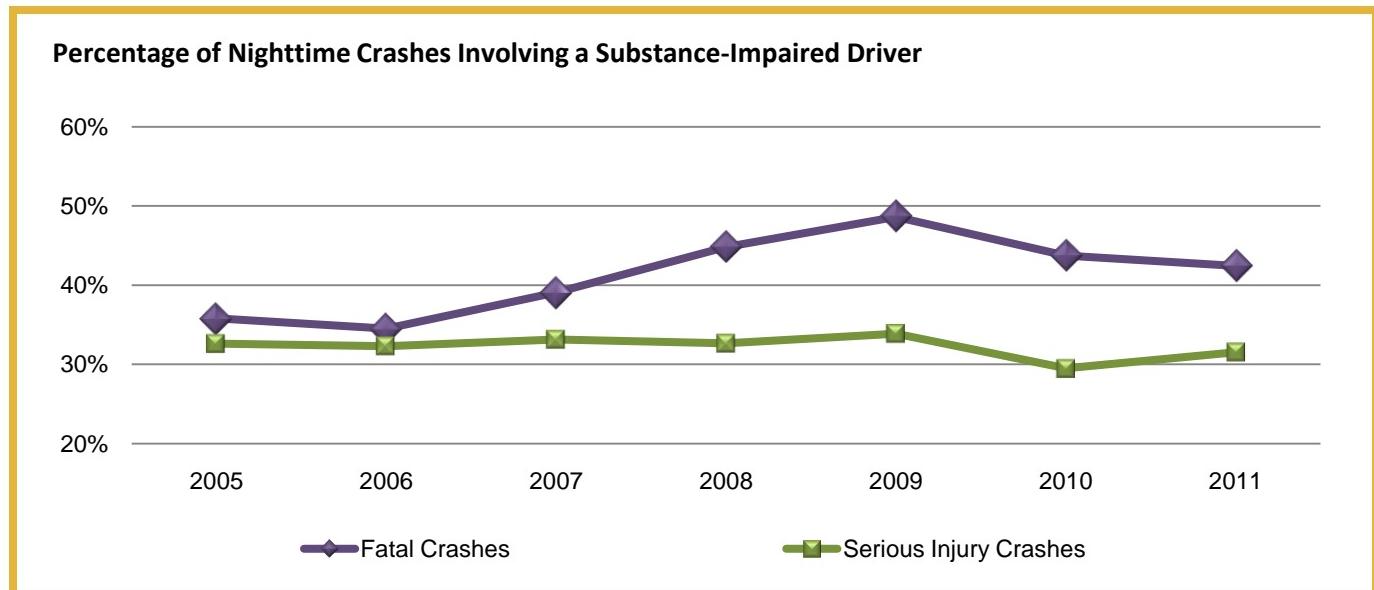
- Percentage of nighttime fatal and serious injury crashes involving horizontal curves

Percentage of Nighttime Crashes Involving Horizontal Curves

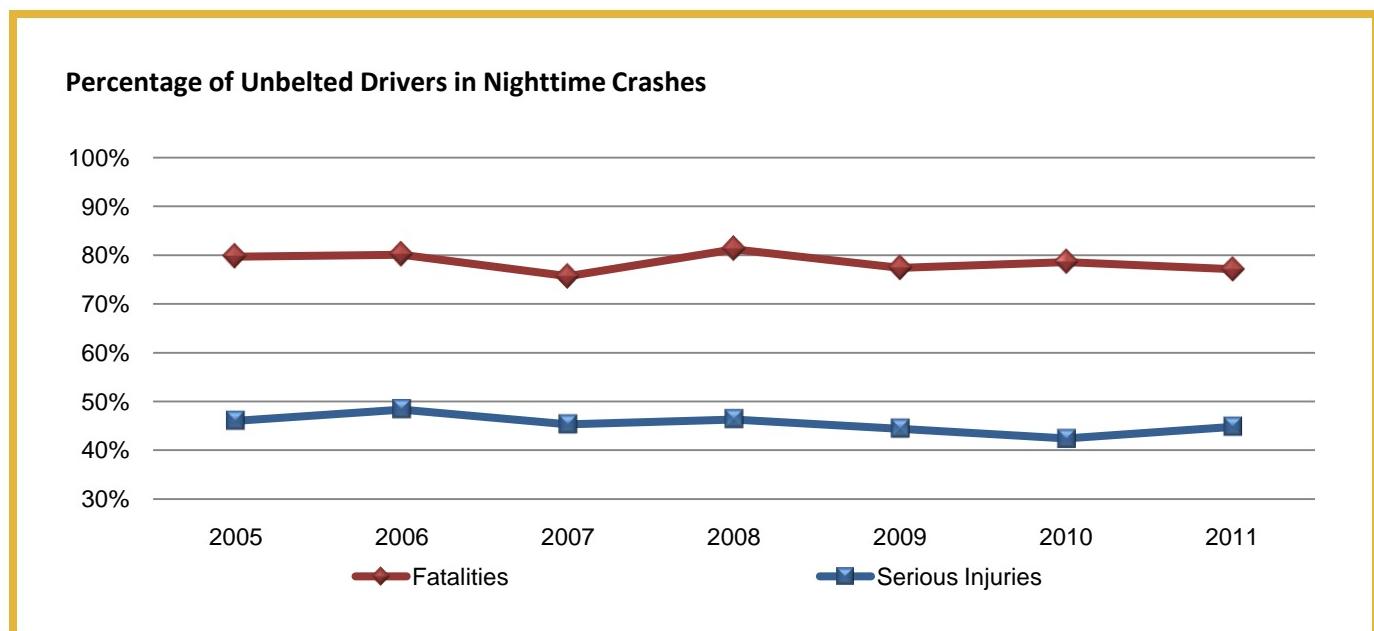


Emphasis Area V / Special Roadway Environments

- Percentage of nighttime fatal and serious injury crashes involving a substance-impaired driver



- Percentage of nighttime unbelted driver fatalities and serious injuries

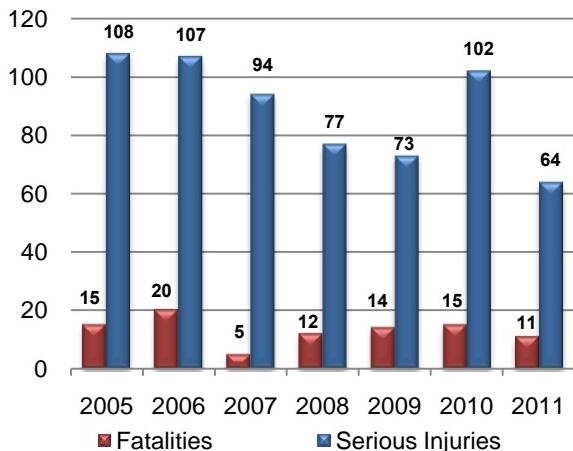


Emphasis Area V / Special Roadway Environments

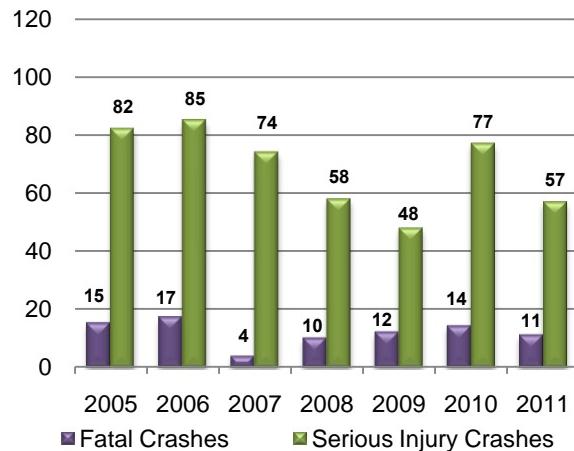
WORK ZONE INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries

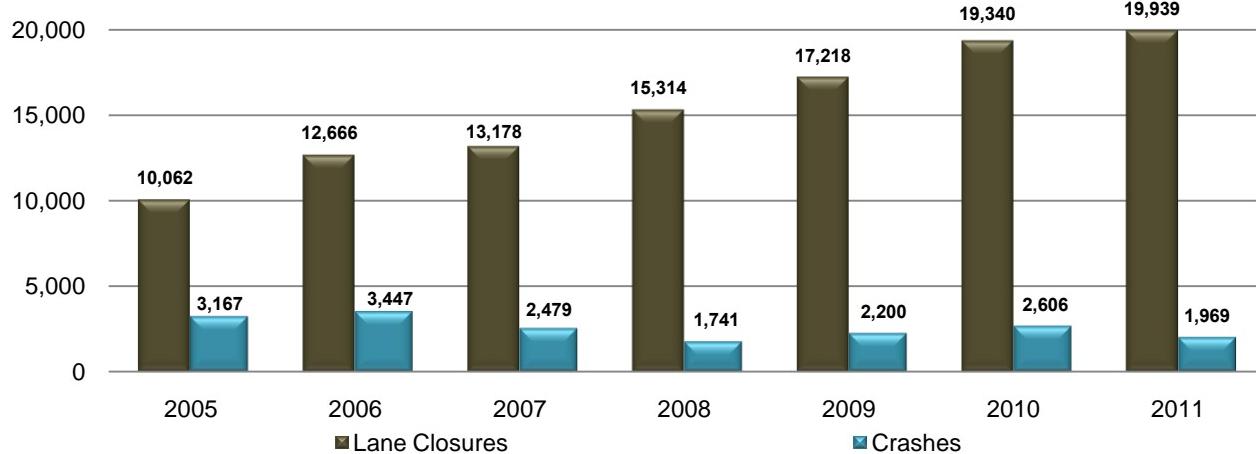


Fatal and Serious Injury Crashes



- Number of lane closures versus number of work zone crashes

Work Zone Lane Closures Versus Work Zone Crashes

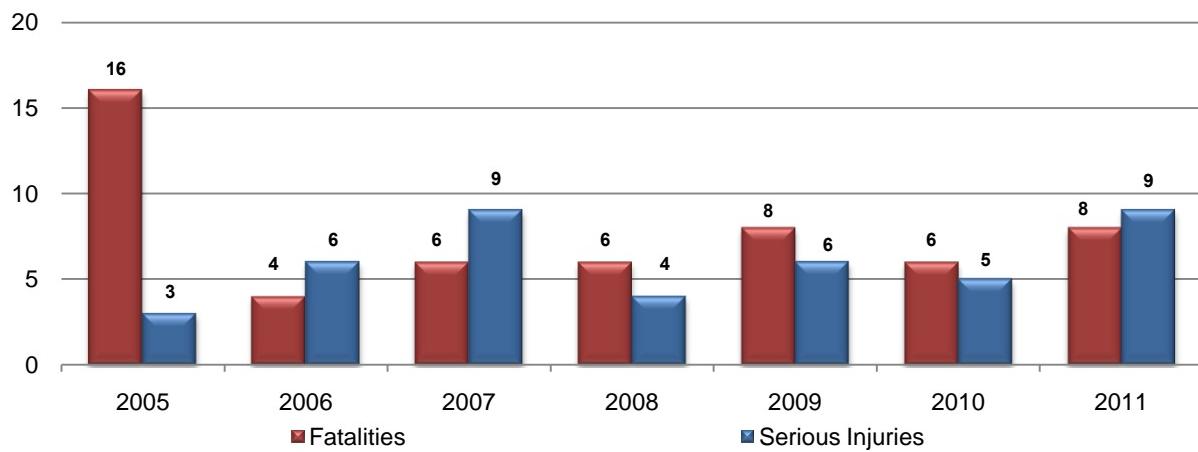


Emphasis Area V / Special Roadway Environments

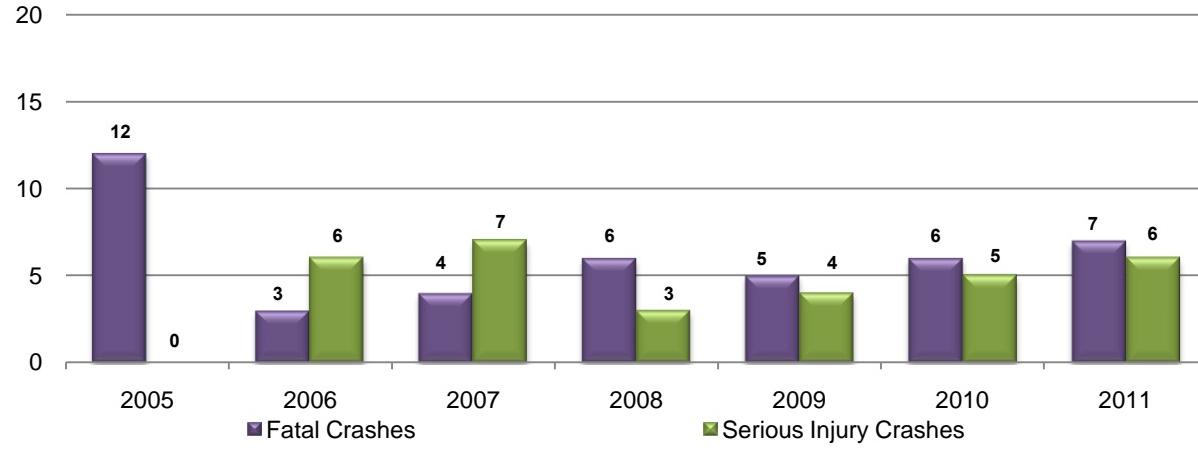
HIGHWAY / RAIL CROSSING INVOLVED

- Number of fatalities and serious injuries
- Number of fatal and serious injury crashes

Fatalities and Serious Injuries



Fatal and Serious Injury Crashes

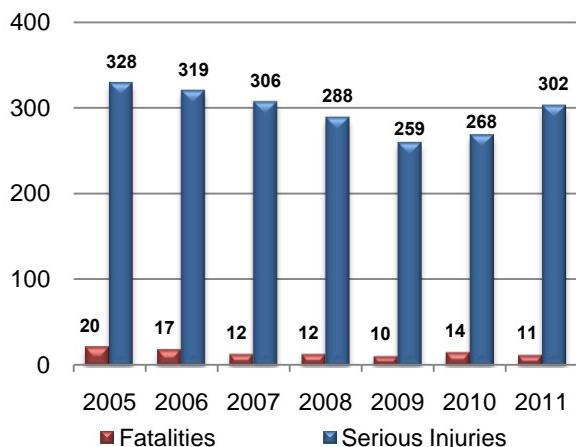


Emphasis Area V / Special Roadway Environments

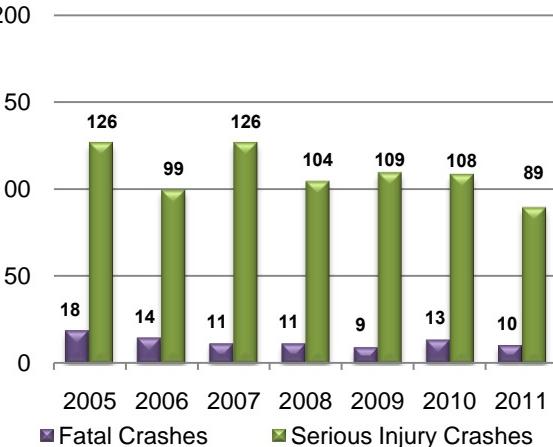
TRAFFIC INCIDENT MANAGEMENT AREAS

- Number of fatalities and serious injuries resulting from secondary crashes
- Number of fatal and serious injury secondary crashes

Fatalities and Serious Injuries

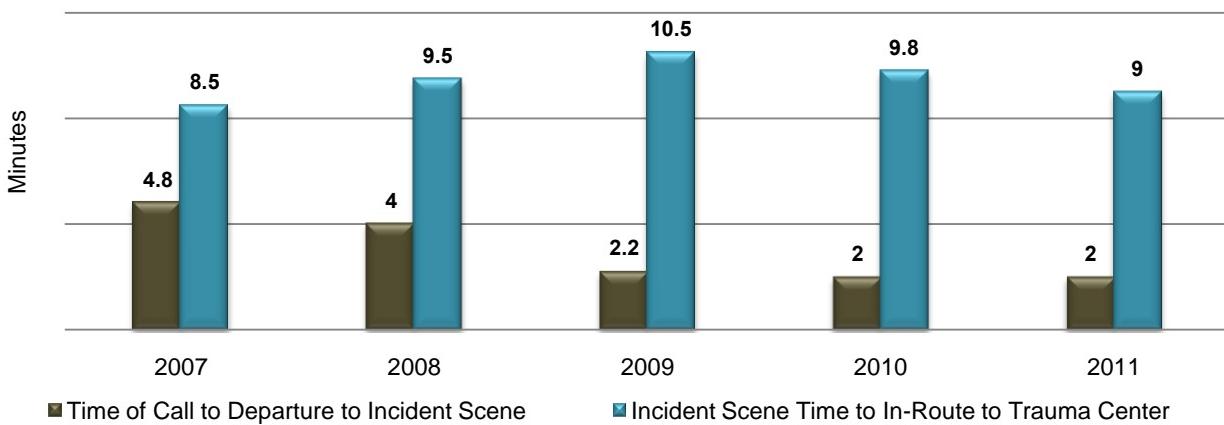


Fatal and Serious Injury Crashes



- Average EMS response time from the time of call to departure to incident scene
- Average EMS on-scene time to in-route to trauma center

Average Incident Response Time

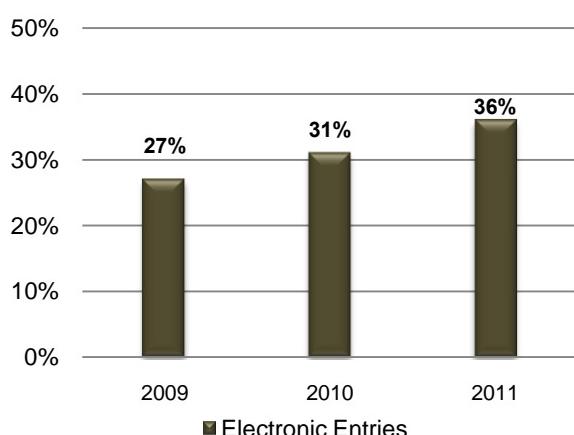


Emphasis Area VI / Data and Data System Improvements

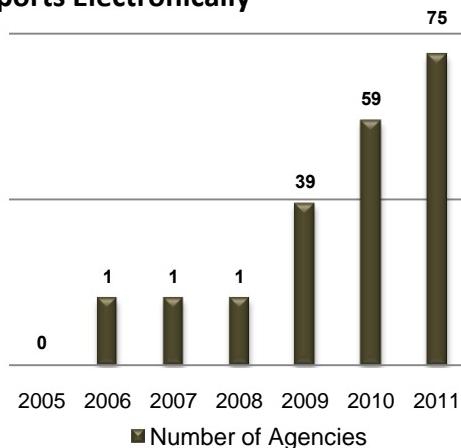
DATA COLLECTION

- Percent of crash reports submitted electronically
- Number of agencies submitting crash reports electronically

Percent of Crash Reports Submitted Electronically

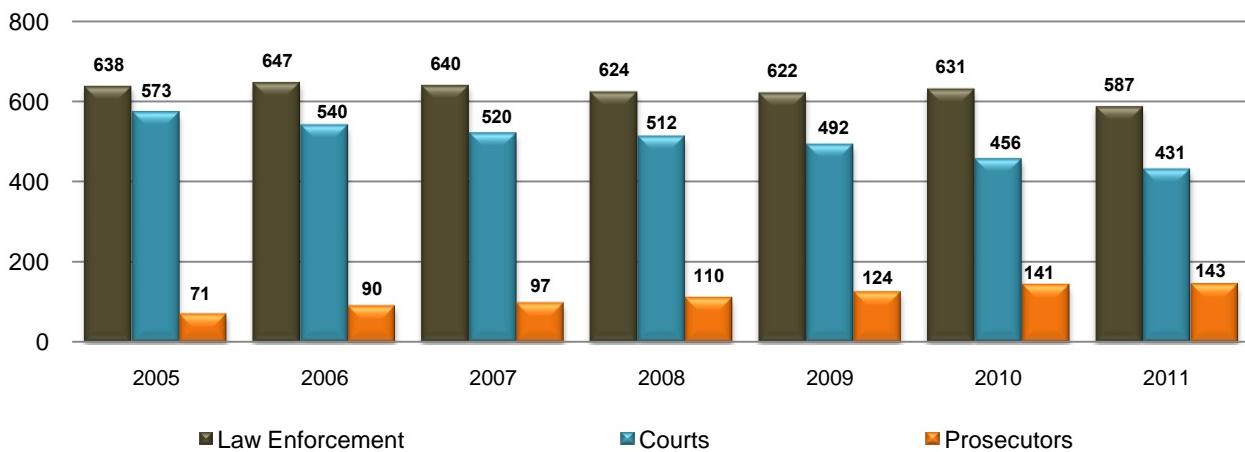


Number of Agencies Submitting Crash Reports Electronically



- Number of agencies submitting/entering data to DWITS Database

Number of Agencies Submitting/Entering Data to DWITS Database

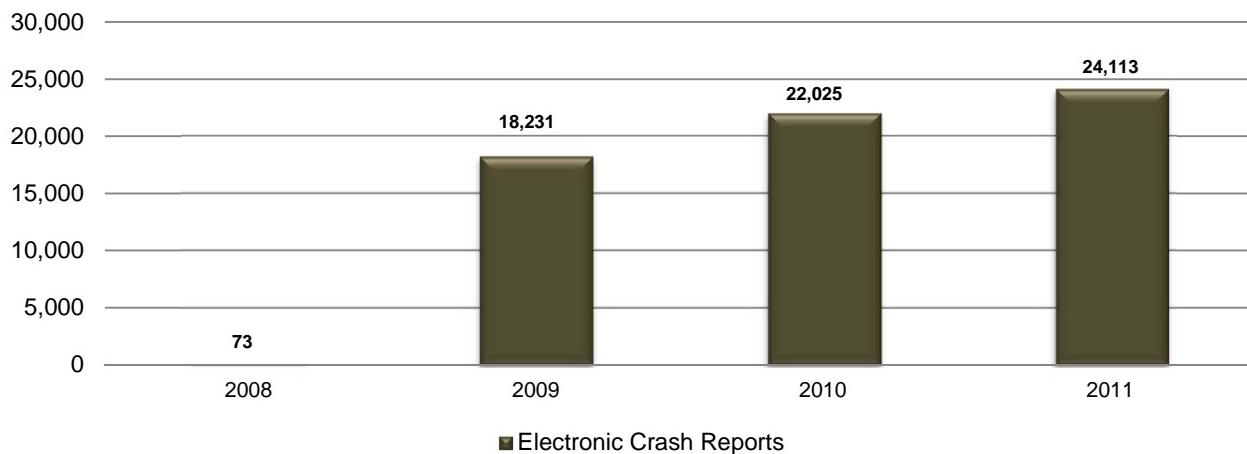


Emphasis Area VI / Data and Data System Improvements

SYSTEM LINKAGE

- Linkage to LETS Software (REJIS) to the STARS Traffic Management System database - increase the number of data transferred (measured by number of crash reports)

Number of Crash Reports Transferred from REJIS to STARS Database

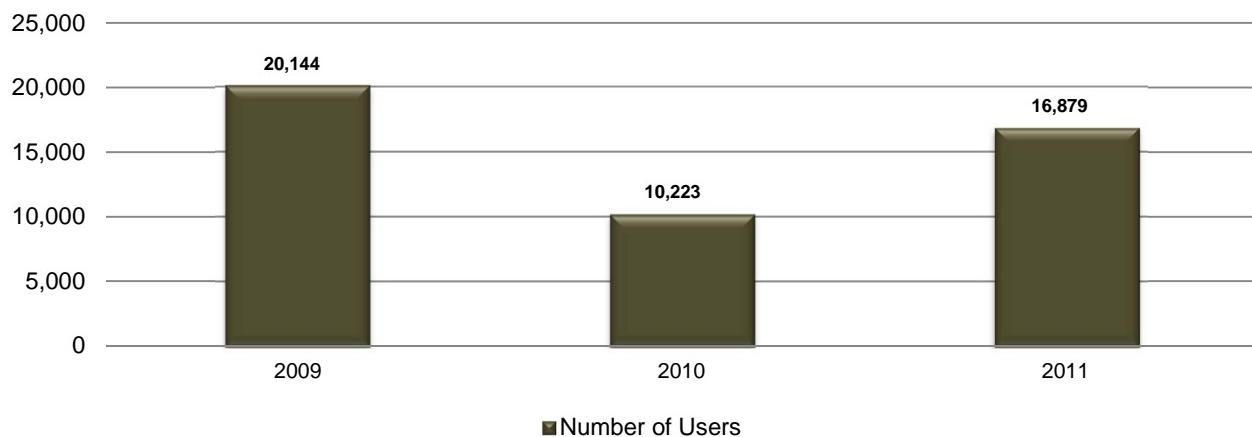


Emphasis Area VI / Data and Data System Improvements

DATA ACCESSIBILITY

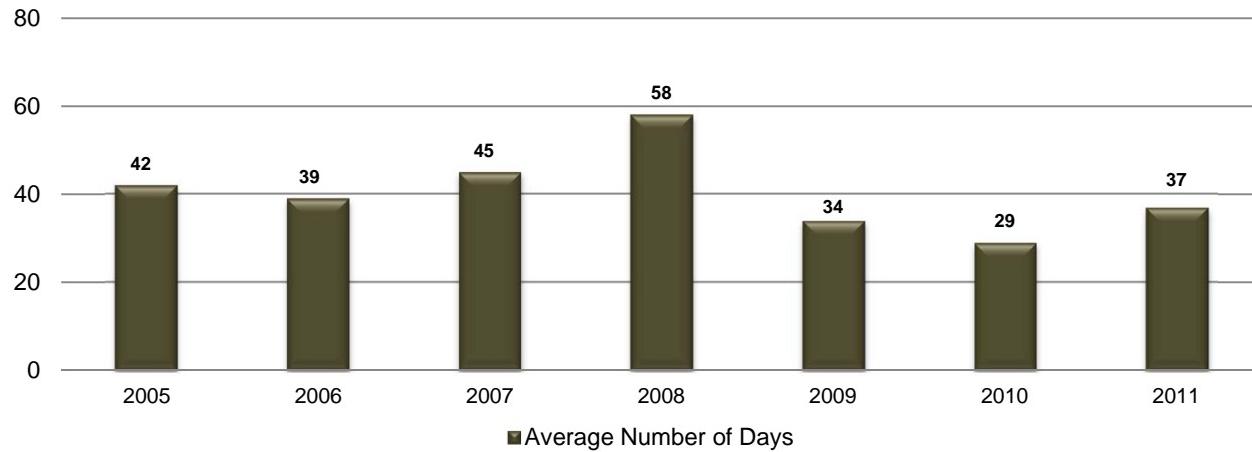
- Number of users gaining data from the Missouri State Highway Patrol's (MSHP) crash report website

Number of Users Gaining Data from MSHP's Crash Report Website



- Average number of days from the crash date to the date the crash report is entered into the state database

Average Number of Days from the Crash to Date of Entry into State Database



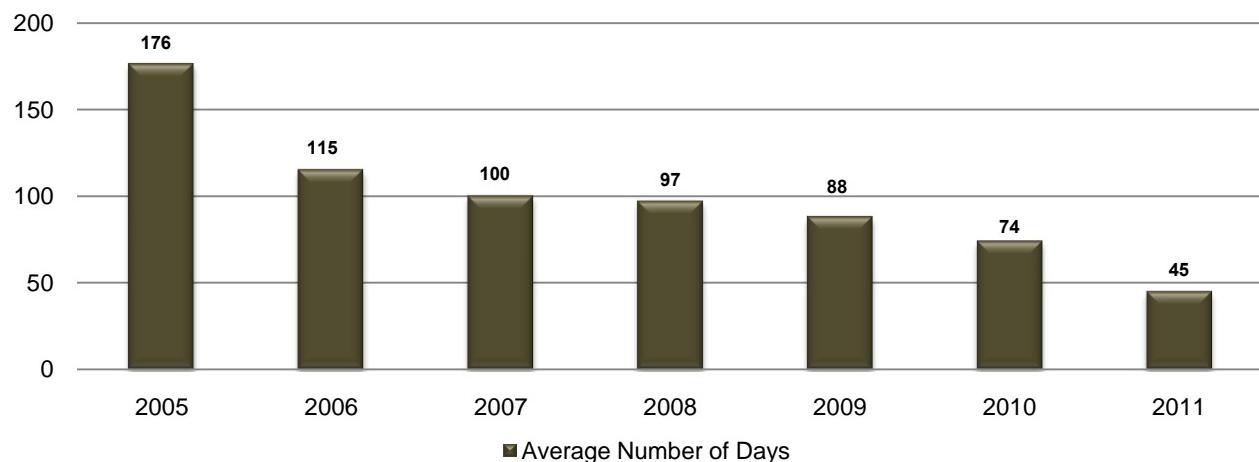
- Average number of days from the date of an EMS run to the date when an EMS patient care report is entered - DATA NOT YET AVAILABLE

Emphasis Area VI / Data and Data System Improvements

DATA COLLECTION

- Number of days from the date of a driver's violation to the date of entry into the state database

Average Number of Days from Driving Violation to Date of Entry into State Database



DATA ZONE

Missouri has created a Web-based data analysis tool. The tool, Blueprint Crash Statistics, is available through the savemolives.com website. It provides fatal and serious injury crash analysis by state, regional coalition, county, city or troop. The tool also contains fatality crash statistics by emphasis area and age. These data are updated on an annual basis to assist highway safety partners in making decisions about which strategies to implement to address individual crash problems.

This section of the document includes the following Appendices.

Appendix A	Total Fatalities and Serious Injuries by Focus Area (Statewide and by Regional Coalition)
Appendix B	Total Fatalities and Serious Injuries by Focus Area (Missouri State Highway Patrol Troops A – I)
Appendix C	Total Fatalities by Age and Focus Area
Appendix D	Crash, Injury and Fatality Maps
Appendix E	Additional Resources

Appendix A

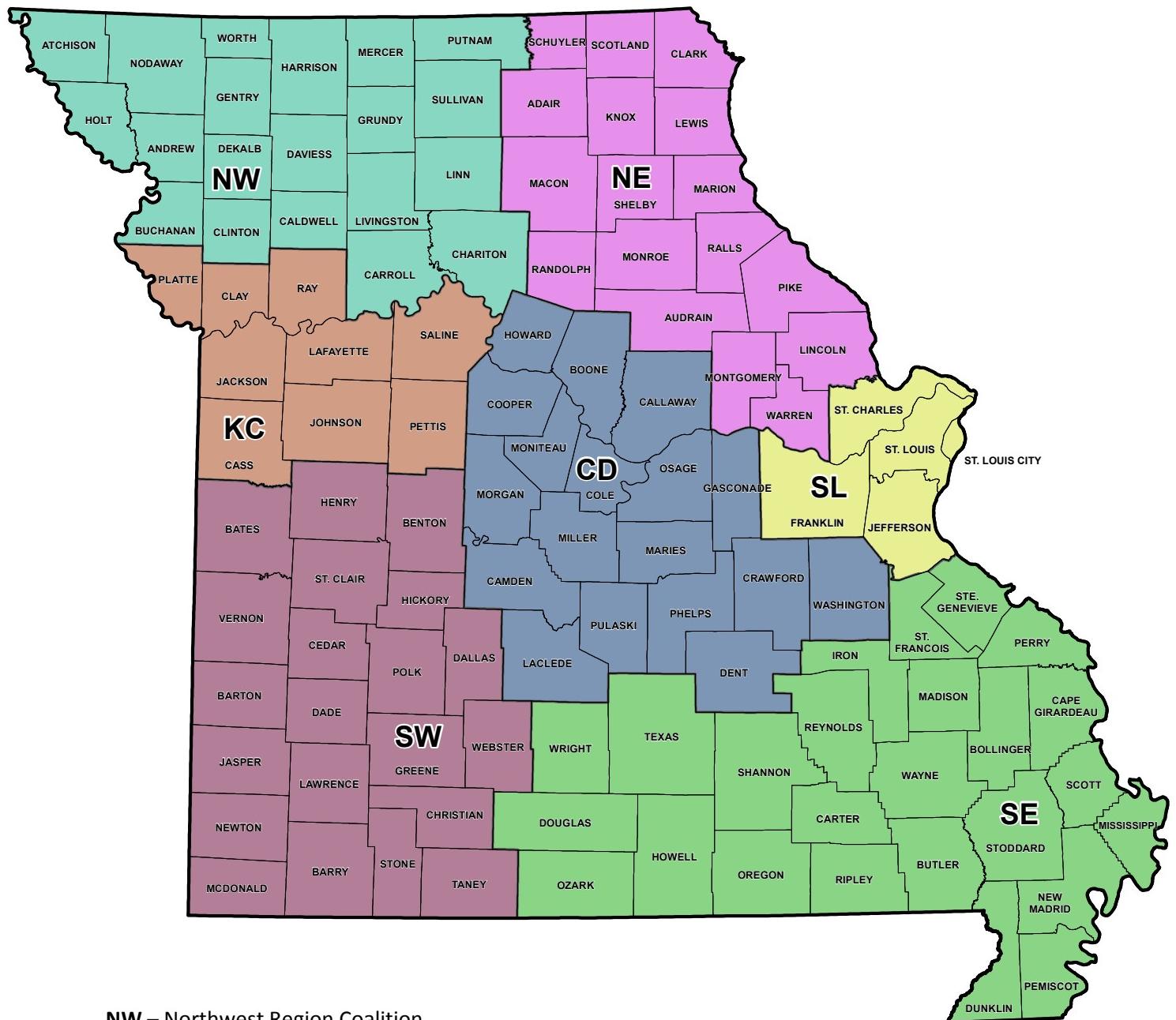
Statewide

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Fatalities Involving					Serious Injuries Involving				
Description	2009	2010	2011	Total	Description	2009	2010	2011	Total
Unrestrained Occupants	425	392	380	1,197	Run-Off-Road Crashes	2,692	2,543	2,312	7,547
Run-Off-Road Crashes	398	395	398	1,191	Aggressive Driving				
Aggressive Driving					Following too close	391	453	369	1,213
Following too close	14	23	19	56	Too fast for conditions	1,637	1,576	1,374	4,587
Too fast for conditions	224	191	183	598	Speed exceeded limit	449	362	378	1,189
Speed exceeded limit	156	148	134	438	TOTAL for 3 conditions	2,477	2,391	2,121	6,989
TOTAL for 3 conditions	394	362	336	1,092	Intersection Crashes				
Horizontal Curves	293	262	270	825	Unsignalized	1,248	1,102	1,012	3,362
Alcohol and/or Other Drugs	281	240	234	755	Signalized	678	645	630	1,953
Distracted Drivers	155	182	161	498	Total for Intersection Serious Injuries	1,926	1,747	1,642	5,315
Intersection Crashes					Horizontal Curves	1,783	1,636	1,521	4,940
Unsignalized	95	122	77	294	Unrestrained Occupants	1,703	1,598	1,451	4,752
Signalized	55	43	36	134	Distracted Drivers	1,590	1,428	1,327	4,345
TOTAL for Intersection Fatalities	150	165	113	428	Young Drivers—15-20	1,646	1,444	1,252	4,342
Young Drivers—15-20	156	119	151	426	Alcohol and/or Other Drugs	1,142	964	945	3,051
Collision with Tree	142	123	132	397	Unlicensed Drivers	756	686	594	2,036
Unlicensed Drivers	123	120	135	378	Motorcyclists Seriously Injured	639	591	634	1,864
Head-On Crashes					Collision with Tree	702	609	537	1,848
Head-On - Non-Interstate	136	98	112	346	Older Drivers—65-75	634	587	502	1,723
Head-On - Interstates	4	8	9	21	Head-On Crashes				
TOTAL for Non-Interstate and Interstate	140	106	121	367	Head-On - Non-Interstates	570	463	477	1,510
Commercial Motor Vehicles	101	103	119	323	Head-On - Interstates	12	15	10	37
Motorcyclists Killed	84	93	81	258	TOTAL for Non-Interstate and Interstate	582	478	487	1,547
Older Drivers—65-75	94	84	72	250	Commercial Motor Vehicles	537	494	457	1,488
Pedestrians Killed	71	57	75	203	Older Drivers – 76 or Older	368	334	309	1,011
Older Drivers – 76 or Older	66	77	57	200	Pedestrians Seriously Injured	259	268	302	829
Collision with Utility Pole	23	27	31	81	Collision with Utility Pole	227	176	180	583
Work Zones	14	15	11	40	Work Zones	73	102	64	239
Bicyclists Killed	2	7	1	10	Bicyclists Seriously Injured	72	69	73	214
School Buses / School Bus Signal	2	5	1	8	School Buses / School Bus Signal	35	34	19	88

Regional Coalitions



NW – Northwest Region Coalition

NE – Northeast Region Coalition

KC – Kansas City Region Coalition

CD – Central District Region Coalition

SL – St. Louis Region Coalition

SW – Southwest Region Coalition

SE – Southeast Region Coalition

Appendix A

Northwest Region Coalition

Total Fatalities and Serious Injuries by Focus Area
2009 - 2011

Northwest Region Coalition vs. State

Total Fatalities				Total Serious Injuries			
Year	Region	State	%	Year	Region	State	%
2009	57	878	6.49%	2009	453	6,540	6.93%
2010	32	821	3.90%	2010	366	6,096	6.00%
2011	48	786	6.11%	2011	377	5,643	6.68%
Total	137	2,485	5.51%	Total	1,196	18,279	6.54%

Northwest Region Coalition

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	34	13	34	81
Run-Off-Road Crashes	29	14	25	68
Aggressive Driving				
Following too close	1	2	1	4
Too fast for conditions	18	10	10	38
Speed exceeded limit	2	1	8	11
TOTAL for 3 conditions	21	13	19	53
Alcohol and/or Other Drugs	16	6	21	43
Horizontal Curves	11	5	13	29
Commercial Motor Vehicles	8	7	8	23
Young Drivers—15-20	11	1	10	22
Intersection Crashes				
Unsignalized	7	4	7	18
Signalized	1	2	0	3
TOTAL for Intersection Fatalities	8	6	7	21
Unlicensed Drivers	9	2	8	19
Older Drivers—65-75	6	4	9	19
Head-On Crashes				
Head-On - Non-Interstate	8	3	5	16
Head-On - Interstates	0	1	1	2
TOTAL for Non-Interstate and Interstate	8	4	6	18
Distracted Drivers	5	3	6	14
Older Drivers – 76 or Older	5	5	2	12
Collision with Tree	6	2	3	11
Motorcyclists Killed	5	2	3	10
Collision with Utility Pole	2	1	2	5
Pedestrians Killed	1	4	0	5
Work Zones	1	2	2	5
School Buses / School Bus Signal	0	1	0	1
Bicyclists Killed	0	0	0	0

Serious Injuries Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	194	156	134	484
Aggressive Driving				
Following too close	44	34	44	122
Too fast for conditions	88	89	62	239
Speed exceeded limit	35	18	22	75
TOTAL for 3 conditions	167	141	128	436
Intersection Crashes				
Unsignalized	93	67	86	246
Signalized	45	40	55	140
TOTAL for Intersection Serious Injuries	138	107	141	386
Unrestrained Occupants	150	109	117	376
Young Drivers—15-20	132	99	107	338
Distracted Drivers	85	74	68	227
Alcohol and/or Other Drugs	92	63	50	205
Horizontal Curves	78	66	61	205
Unlicensed Drivers	68	33	40	141
Motorcyclists Seriously Injured	34	39	37	110
Commercial Motor Vehicles	29	37	38	104
Older Drivers—65-75	39	30	34	103
Head-On Crashes				
Head-On - Non-Interstate	24	26	29	79
Head-On - Interstates	0	2	1	3
TOTAL for Non-Interstate and Interstate	24	28	30	82
Older Drivers – 76 or Older	27	23	26	76
Collision with Tree	23	13	26	62
Collision with Utility Pole	26	10	10	46
Pedestrians Seriously Injured	15	11	11	37
Bicyclists Seriously Injured	8	5	5	18
Work Zones	2	4	5	11
School Buses / School Bus Signal	4	2	1	7

Appendix A

Northeast Region Coalition

Total Fatalities and Serious Injuries by Focus Area
2009 - 2011

Northeast Region Coalition vs. State

Total Fatalities			
Year	Region	State	%
2009	49	878	5.58%
2010	66	821	8.04%
2011	50	786	6.36%
Total	165	2,485	6.64%

Total Serious Injuries			
Year	Region	State	%
2009	382	6,540	5.84%
2010	365	6,096	5.99%
2011	356	5,643	6.31%
Total	1,103	18,279	6.03%

Northeast Region Coalition

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	32	43	28	103
Run-Off-Road Crashes	28	36	27	91
Aggressive Driving				
Following too close	0	1	4	5
Too fast for conditions	15	14	13	42
Speed exceeded limit	9	11	6	26
TOTAL for 3 conditions	24	26	23	73
Horizontal Curves	20	18	17	55
Alcohol and/or Other Drugs	17	21	15	53
Distracted Drivers	12	14	13	39
Young Drivers—15-20	11	14	13	38
Intersection Crashes				
Unsignalized	10	11	5	26
Signalized	1	1	0	2
TOTAL for Intersection Fatalities	11	12	5	28
Commercial Motor Vehicles	6	11	10	27
Collision with Tree	10	4	12	26
Unlicensed Drivers	7	7	5	19
Head-On Crashes				
Head-On - Non-Interstate	6	8	4	18
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	6	8	4	18
Older Drivers – 76 or Older	3	6	6	15
Older Drivers—65-75	3	5	6	14
Motorcyclists Killed	4	3	3	10
Pedestrians Killed	0	3	5	8
Collision with Utility Pole	1	2	0	3
Work Zones	0	1	0	1
Bicyclists Killed	0	1	0	1
School Buses / School Bus Signal	0	0	0	0

Serious Injuries Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	182	174	179	535
Aggressive Driving				
Following too close	25	19	20	64
Too fast for conditions	94	107	107	308
Speed exceeded limit	18	25	12	55
TOTAL for 3 conditions	137	151	139	427
Horizontal Curves	107	108	94	309
Unrestrained Occupants	89	110	105	304
Young Drivers—15-20	89	110	80	279
Distracted Drivers	87	78	81	246
Intersection Crashes				
Unsignalized	72	71	60	203
Signalized	12	4	11	27
TOTAL for Intersection Serious Injuries	84	75	71	230
Alcohol and/or Other Drugs	62	51	53	166
Commercial Motor Vehicles	53	40	33	126
Motorcyclists Seriously Injured	41	24	38	103
Older Drivers—65-75	24	42	34	100
Head-On Crashes				
Head-On - Non-Interstate	40	28	26	94
Head-On - Interstates	1	0	0	1
TOTAL for Non-Interstate and Interstate	41	28	26	95
Unlicensed Drivers	33	32	24	89
Collision with Tree	35	26	27	88
Older Drivers – 76 or Older	25	16	20	61
Collision with Utility Pole	12	11	19	42
Pedestrians Seriously Injured	9	9	12	30
Work Zones	6	3	3	12
School Buses / School Bus Signal	3	6	1	10
Bicyclists Seriously Injured	1	4	4	9

Appendix A

Kansas City Region Coalition

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Kansas City Region Coalition vs. State

Total Fatalities			
Year	Region	State	%
2009	155	878	17.65%
2010	145	821	17.66%
2011	122	786	15.52%
Total	422	2,485	16.98%

Total Serious Injuries			
Year	Region	State	%
2009	1,125	6,540	17.20%
2010	1,110	6,096	18.21%
2011	1,140	5,643	20.20%
Total	3,375	18,279	18.46%

Kansas City Region Coalition

Fatalities Involving

Description	2009	2010	2011	Total
Aggressive Driving				
Following too close	3	3	0	6
Too fast for conditions	36	25	25	86
Speed exceeded limit	56	42	19	117
TOTAL for 3 conditions	95	70	44	209
Run-Off-Road Crashes	59	72	52	183
Unrestrained Occupants	70	63	40	173
Alcohol and/or Other Drugs	58	34	30	122
Horizontal Curves	32	37	31	100
Unlicensed Drivers	31	31	28	90
Intersection Crashes				
Unsignalized	25	19	10	54
Signalized	12	12	9	33
TOTAL for Intersection Fatalities	37	31	19	87
Young Drivers—15-20	30	13	24	67
Distracted Drivers	24	28	15	67
Motorcyclists Killed	22	18	21	61
Head-On Crashes				
Head-On - Non-Interstate	16	12	17	45
Head-On - Interstates	1	0	3	4
TOTAL for Non-Interstate and Interstate	17	12	20	49
Commercial Motor Vehicles	15	20	14	49
Collision with Tree	20	16	12	48
Pedestrians Killed	17	10	21	48
Older Drivers—65-75	11	13	10	34
Older Drivers – 76 or Older	8	15	6	29
Collision with Utility Pole	8	4	3	15
Work Zones	5	2	2	9
Bicyclists Killed	1	3	1	5
School Buses / School Bus Signal	0	0	0	0

Description	2009	2010	2011	Total
Intersection Crashes				
Unsignalized	300	275	287	862
Signalized	182	178	216	576
TOTAL for Intersection Serious Injuries	482	453	503	1,438
Aggressive Driving				
Following too close	71	105	118	294
Too fast for conditions	229	216	243	688
Speed exceeded limit	121	87	105	313
TOTAL for 3 conditions	421	408	466	1,295
Run-Off-Road Crashes	345	317	340	1,002
Distracted Drivers	293	283	264	840
Young Drivers—15-20	300	234	246	780
Unrestrained Occupants	255	195	208	658
Horizontal Curves	217	198	223	638
Alcohol and/or Other Drugs	185	155	182	522
Unlicensed Drivers	146	135	128	409
Motorcyclists Seriously Injured	133	122	128	383
Older Drivers—65-75	99	111	96	306
Commercial Motor Vehicles	75	77	76	228
Pedestrians Seriously Injured	65	68	76	209
Head-On Crashes				
Head-On - Non-Interstate	63	58	81	202
Head-On - Interstates	4	0	2	6
TOTAL for Non-Interstate and Interstate	67	58	83	208
Collision with Tree	68	49	67	184
Older Drivers – 76 or Older	50	63	65	178
Collision with Utility Pole	37	25	48	110
Work Zones	13	25	20	58
Bicyclists Seriously Injured	10	20	15	45
School Buses / School Bus Signal	5	3	4	12

Appendix A

Central Region Coalition

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Central Region Coalition vs. State

Total Fatalities			
Year	Region	State	%
2009	133	878	15.15%
2010	101	821	12.30%
2011	120	786	15.27%
Total	354	2,485	14.25%

Total Serious Injuries			
Year	Region	State	%
2009	916	6,540	14.01%
2010	793	6,096	13.01%
2011	778	5,643	13.79%
Total	2,487	18,279	13.61%

Central Region Coalition

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	69	53	66	188
Run-Off-Road Crashes	66	53	68	187
Horizontal Curves	59	46	59	164
Aggressive Driving				
Following too close	3	3	1	7
Too fast for conditions	28	30	32	90
Speed exceeded limit	18	15	25	58
TOTAL for 3 conditions	49	48	58	155
Alcohol and/or Other Drugs	41	41	44	126
Collision with Tree	30	29	28	87
Head-On Crashes				
Head-On - Non-Interstate	32	23	25	80
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	32	23	25	80
Distracted Drivers	16	19	38	73
Young Drivers—15-20	29	15	20	64
Unlicensed Drivers	16	14	20	50
Older Drivers—65-75	18	10	13	41
Commercial Motor Vehicles	11	12	16	39
Intersection Crashes				
Unsignalized	7	14	11	32
Signalized	3	0	0	3
TOTAL for Intersection Fatalities	10	14	11	35
Motorcyclists Killed	16	6	8	30
Older Drivers – 76 or Older	10	6	4	20
Pedestrians Killed	5	7	8	20
Collision with Utility Pole	2	1	3	6
School Buses / School Bus Signal	1	1	1	3
Work Zones	1	0	0	1
Bicyclists Killed	0	0	0	0

Serious Injuries Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	466	411	367	1,244
Aggressive Driving				
Following too close	40	54	34	128
Too fast for conditions	258	256	210	724
Speed exceeded limit	59	33	41	133
TOTAL for 3 conditions	357	343	285	985
Horizontal Curves	342	312	303	957
Unrestrained Occupants	267	244	218	729
Young Drivers—15-20	236	171	172	579
Distracted Drivers	198	163	188	549
Intersection Crashes				
Unsignalized	114	109	103	326
Signalized	53	68	69	190
TOTAL for Intersection Serious Injuries	167	177	172	516
Alcohol and/or Other Drugs	176	152	143	471
Collision with Tree	128	121	91	340
Head-On Crashes				
Head-On - Non-Interstate	105	76	98	279
Head-On - Interstates	1	0	0	1
TOTAL for Non-Interstate and Interstate	106	76	98	280
Older Drivers—65-75	102	77	78	257
Motorcyclists Seriously Injured	87	79	88	254
Unlicensed Drivers	87	79	63	229
Commercial Motor Vehicles	75	57	64	196
Older Drivers – 76 or Older	45	36	42	123
Pedestrians Seriously Injured	21	24	25	70
Collision with Utility Pole	31	17	15	63
Work Zones	14	7	8	29
Bicyclists Seriously Injured	4	2	7	13
School Buses / School Bus Signal	3	5	2	10

Appendix A

St. Louis Region Coalition

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

St. Louis Region Coalition vs. State

Total Fatalities			
Year	Region	State	%
2009	170	878	19.36%
2010	175	821	21.32%
2011	162	786	20.61%
Total	507	2,485	20.40%

Total Serious Injuries			
Year	Region	State	%
2009	1,552	6,540	23.73%
2010	1,513	6,096	24.82%
2011	1,236	5,643	21.90%
Total	4,301	18,279	23.53%

St. Louis Region Coalition

Fatalities Involving

Description	2009	2010	2011	Total
Aggressive Driving				
Following too close	4	5	0	9
Too fast for conditions	37	33	29	99
Speed exceeded limit	37	38	40	115
TOTAL for 3 conditions	78	76	69	223
Run-Off-Road Crashes	68	71	82	221
Unrestrained Occupants	68	69	70	207
Horizontal Curves	58	51	55	164
Alcohol and/or Other Drugs	47	51	46	144
Intersection Crashes				
Unsignalized	10	21	9	40
Signalized	27	17	21	65
TOTAL for Intersection Fatalities	37	38	30	105
Distracted Drivers	35	42	28	105
Young Drivers—15-20	33	37	30	100
Unlicensed Drivers	23	25	30	78
Pedestrians Killed	29	21	26	76
Collision with Tree	22	19	29	70
Motorcyclists Killed	18	29	21	68
Head-On Crashes				
Head-On - Non-Interstate	17	15	19	51
Head-On - Interstates	3	4	3	10
TOTAL for Non-Interstate and Interstate	20	19	22	61
Commercial Motor Vehicles	18	21	18	57
Older Drivers—65-75	14	21	9	44
Older Drivers – 76 or Older	15	10	10	35
Collision with Utility Pole	4	6	11	21
Work Zones	2	8	2	12
School Buses / School Bus Signal	1	3	0	4
Bicyclists Killed	0	1	0	1

Serious Injuries Involving

Description	2009	2010	2011	Total
Aggressive Driving				
Following too close	115	137	68	320
Too fast for conditions	325	342	270	937
Speed exceeded limit	113	126	113	352
TOTAL for 3 conditions	553	605	451	1,609
Run-Off-Road Crashes	534	525	419	1,478
Intersection Crashes				
Unsignalized	277	208	176	661
Signalized	282	268	211	761
TOTAL for Intersection Serious Injuries	559	476	387	1,422
Young Drivers—15-20	400	381	266	1,047
Horizontal Curves	398	353	277	1,028
Distracted Drivers	376	338	287	1,001
Unrestrained Occupants	291	310	212	813
Alcohol and/or Other Drugs	221	195	179	595
Motorcyclists Seriously Injured	136	142	123	401
Older Drivers—65-75	139	137	108	384
Unlicensed Drivers	131	145	97	373
Collision with Tree	155	126	84	365
Head-On Crashes				
Head-On - Non-Interstate	126	112	101	339
Head-On - Interstates	2	9	5	16
TOTAL for Non-Interstate and Interstate	128	121	106	355
Pedestrians Seriously Injured	109	111	132	352
Commercial Motor Vehicles	131	126	87	344
Older Drivers – 76 or Older	95	75	77	247
Collision with Utility Pole	60	67	42	169
Work Zones	25	44	21	90
Bicyclists Seriously Injured	28	22	22	72
School Buses / School Bus Signal	17	11	4	32

Appendix A

Southwest Region Coalition

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Southwest Region Coalition vs. State

Total Fatalities			
Year	Region	State	%
2009	165	878	18.79%
2010	167	821	20.34%
2011	154	786	19.59%
Total	486	2,485	19.56%

Total Serious Injuries			
Year	Region	State	%
2009	1,309	6,540	20.02%
2010	1,169	6,096	19.18%
2011	1,045	5,643	18.52%
Total	3,523	18,279	19.27%

Southwest Region Coalition

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	80	81	70	231
Run-Off-Road Crashes	84	71	71	226
Aggressive Driving				
Following too close	3	4	5	12
Too fast for conditions	44	41	40	125
Speed exceeded limit	19	29	21	69
TOTAL for 3 conditions	66	74	66	206
Horizontal Curves	53	49	50	152
Alcohol and/or Other Drugs	51	51	46	148
Distracted Drivers	48	53	40	141
Intersection Crashes				
Unsignalized	22	37	22	81
Signalized	10	11	6	27
TOTAL for Intersection Fatalities	32	48	28	108
Collision with Tree	31	30	21	82
Unlicensed Drivers	22	24	31	77
Young Drivers—15-20	22	24	27	73
Head-On Crashes				
Head-On - Non-Interstate	24	23	23	70
Head-On - Interstates	0	2	1	3
TOTAL for Non-Interstate and Interstate	24	25	24	73
Commercial Motor Vehicles	19	16	30	65
Motorcyclists Killed	14	21	18	53
Older Drivers – 76 or Older	13	22	16	51
Older Drivers—65-75	19	15	13	47
Pedestrians Killed	6	7	10	23
Collision with Utility Pole	0	9	8	17
Work Zones	1	2	2	5
Bicyclists Killed	1	2	0	3
School Buses / School Bus Signal	0	0	0	0

Serious Injuries Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	563	548	504	1,615
Aggressive Driving				
Following too close	64	63	57	184
Too fast for conditions	381	322	297	1,000
Speed exceeded limit	70	45	38	153
TOTAL for 3 conditions	515	430	392	1,337
Distracted Drivers	408	353	313	1,074
Horizontal Curves	364	333	319	1,016
Unrestrained Occupants	334	336	301	971
Intersection Crashes				
Unsignalized	250	252	196	698
Signalized	89	65	54	208
TOTAL for Intersection Serious Injuries	339	317	250	906
Young Drivers—15-20	302	277	230	809
Alcohol and/or Other Drugs	241	181	179	601
Unlicensed Drivers	191	170	161	522
Collision with Tree	146	149	129	424
Motorcyclists Seriously Injured	142	121	154	417
Older Drivers—65-75	149	109	102	360
Commercial Motor Vehicles	120	94	101	315
Head-On Crashes				
Head-On - Non-Interstate	123	100	77	300
Head-On - Interstates	2	1	1	4
TOTAL for Non-Interstate and Interstate	125	101	78	304
Older Drivers – 76 or Older	86	81	56	223
Collision with Utility Pole	45	29	29	103
Pedestrians Seriously Injured	26	30	27	83
Bicyclists Seriously Injured	12	12	14	38
Work Zones	8	14	4	26
School Buses / School Bus Signal	2	4	5	11

Appendix A

Southeast Region Coalition

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Southeast Region Coalition vs. State

Total Fatalities			
Year	Region	State	%
2009	149	878	16.97%
2010	135	821	16.44%
2011	130	786	16.54%
Total	414	2,485	16.66%

Total Serious Injuries			
Year	Region	State	%
2009	803	6,540	12.28%
2010	780	6,096	12.80%
2011	711	5,643	12.60%
Total	2,294	18,279	12.55%

Southeast Region Coalition

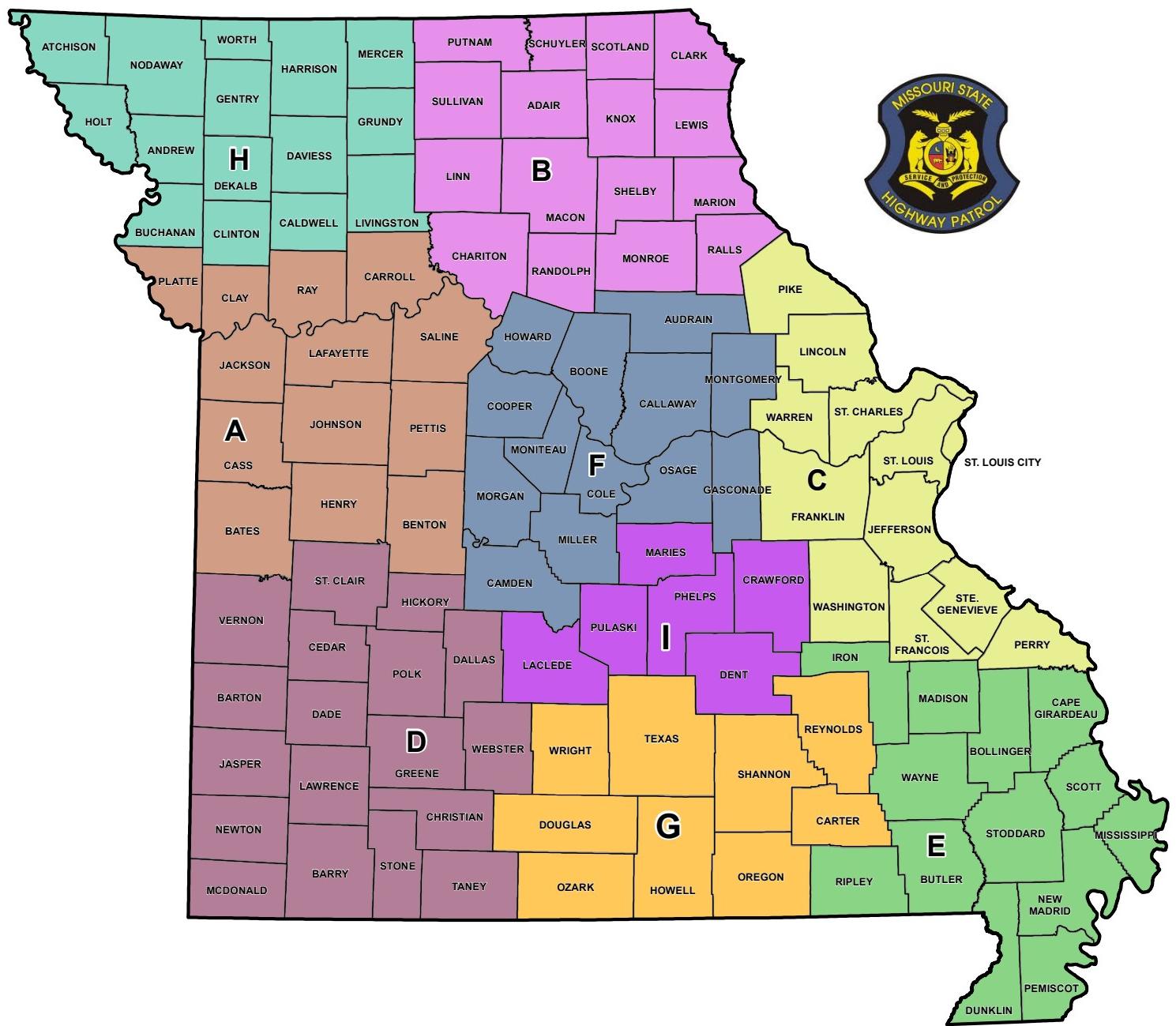
Fatalities Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	64	78	73	215
Unrestrained Occupants	72	70	72	214
Aggressive Driving				
Following too close	0	5	8	13
Too fast for conditions	46	38	34	118
Speed exceeded limit	15	12	15	42
TOTAL for 3 conditions	61	55	57	173
Horizontal Curves	60	56	45	161
Alcohol and/or Other Drugs	51	36	32	119
Collision with Tree	23	23	27	73
Head-On Crashes				
Head-On - Non-Interstate	33	14	19	66
Head-On - Interstates	0	1	1	2
TOTAL for Non-Interstate and Interstate	33	15	20	68
Commercial Motor Vehicles	24	16	23	63
Young Drivers—15-20	20	15	27	62
Distracted Drivers	15	23	21	59
Older Drivers—65-75	23	16	12	51
Unlicensed Drivers	15	17	13	45
Intersection Crashes				
Unsignalized	14	16	13	43
Signalized	1	0	0	1
TOTAL for Intersection Fatalities	15	16	13	44
Older Drivers – 76 or Older	12	13	13	38
Motorcyclists Killed	5	14	7	26
Pedestrians Killed	13	5	5	23
Collision with Utility Pole	6	4	4	14
Work Zones	4	0	3	7
Bicyclists Killed	0	0	0	0
School Buses / School Bus Signal	0	0	0	0

Serious Injuries Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	408	412	369	1,189
Unrestrained Occupants	317	294	290	901
Aggressive Driving				
Following too close	32	41	28	101
Too fast for conditions	262	244	185	691
Speed exceeded limit	33	28	47	108
TOTAL for 3 conditions	327	313	260	900
Horizontal Curves	277	266	244	787
Young Drivers—15-20	187	172	151	510
Alcohol and/or Other Drugs	165	167	159	491
Intersection Crashes				
Unsignalized	142	120	104	366
Signalized	15	22	14	51
TOTAL for Intersection Serious Injuries	157	142	118	417
Distracted Drivers	143	139	126	408
Collision with Tree	147	125	113	385
Unlicensed Drivers	100	92	81	273
Head-On Crashes				
Head-On - Non-Interstate	89	63	65	217
Head-On - Interstates	2	3	1	6
TOTAL for Non-Interstate and Interstate	91	66	66	223
Older Drivers—65-75	82	81	50	213
Motorcyclists Seriously Injured	66	64	66	196
Commercial Motor Vehicles	54	63	58	175
Older Drivers – 76 or Older	40	40	23	103
Collision with Utility Pole	16	17	17	50
Pedestrians Seriously Injured	14	15	19	48
Bicyclists Seriously Injured	9	4	6	19
Work Zones	5	5	3	13
School Buses / School Bus Signal	1	3	2	6

Missouri State Highway Patrol Troops



Appendix B

Troop A

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Troop A vs. State

Total Fatalities				Total Serious Injuries			
Year	Troop A	State	%	Year	Troop A	State	%
2009	172	878	19.59%	2009	1,227	6,540	18.76%
2010	158	821	19.24%	2010	1,189	6,096	19.50%
2011	144	786	18.32%	2011	1,227	5,643	21.74%
Total	474	2,485	19.07%	Total	3,643	18,279	19.93%

Troop A

Fatalities Involving					Seriously Injured Involving				
Description	2009	2010	2011	Total	Description	2009	2010	2011	Total
Aggressive Driving					Intersection Crashes				
Following too close	4	3	1	8	Unsignalized	310	279	298	887
Too fast for conditions	38	29	29	96	Signalized	183	178	216	577
Speed exceeded limit	60	42	20	122	TOTAL for both Unsignalized and Signalized	493	457	514	1,464
TOTAL for 3 conditions	102	74	50	226	Aggressive Driving				
Run-Off-Road Crashes	62	77	63	202	Following too close	78	107	121	306
Unrestrained Occupants	79	67	50	196	Too fast for conditions	257	238	276	771
Alcohol and/or Other Drugs	60	38	37	135	Speed exceeded limit	127	87	106	320
Horizontal Curves	32	40	36	108	TOTAL for 3 conditions	462	432	503	1,397
Intersection Crashes					Run-Off-Road Crashes	399	375	390	1,164
Unsignalized	27	20	14	61	Distracted Drivers	324	300	289	913
Signalized	13	12	9	34	Young Drivers—15-20	322	243	261	826
TOTAL for both Unsignalized and Signalized	40	32	23	95	Unrestrained Occupants	281	227	241	749
Unlicensed Drivers	31	31	31	93	Horizontal Curves	240	222	250	712
Young Drivers—15-20	32	15	33	80	Alcohol and/or Other Drugs	200	179	198	577
Distracted Drivers	28	29	20	77	Unlicensed Drivers	159	153	144	456
Motorcyclists Killed	22	21	22	65	Motorcyclists Seriously Injured	145	131	140	416
Head-On Crashes					Older Drivers—65-75	108	119	100	327
Head-On - Non-Interstate	20	17	23	60	Commercial Motor Vehicles	82	79	83	244
Head-On - Interstates	1	0	3	4	Head-On Crashes				
TOTAL for Non-Interstate and Interstate	21	17	26	64	Head-On - Non-Interstate	70	64	89	223
Commercial Motor Vehicles	17	22	18	57	Head-On - Interstates	4	0	2	6
Collision with Tree	20	18	13	51	TOTAL for Non-Interstate and Interstate	74	64	91	229
Pedestrians Killed	18	10	22	50	Collision with Tree	79	59	84	222
Older Drivers—65-75	14	15	13	42	Pedestrians Seriously Injured	66	70	78	214
Older Drivers—76 or Older	13	16	7	36	Older Drivers—76 or Older	57	67	71	195
Collision with Utility Pole	8	4	6	18	Collision with Utility Pole	42	25	53	120
Work Zones	6	2	2	10	Work Zones	15	27	20	62
Bicyclists Killed	1	3	1	5	Bicyclists Seriously Injured	11	20	16	47
School Buses / School Bus Signal	0	0	0	0	School Buses / School Bus Signal	5	3	5	13

Appendix B

Troop B

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Troop B vs. State

Total Fatalities			
Year	Troop B	State	%
2009	30	878	3.42%
2010	36	821	4.38%
2011	31	786	3.94%
Total	97	2,485	3.90%

Total Serious Injuries			
Year	Troop B	State	%
2009	235	6,540	3.59%
2010	244	6,096	4.00%
2011	216	5,643	3.83%
Total	695	18,279	3.80%

Troop B

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	18	23	19	60
Run-Off-Road Crashes	18	18	17	53
Aggressive Driving				
Following too close	0	1	4	5
Too fast for conditions	8	10	8	26
Speed exceeded limit	5	0	5	10
TOTAL for 3 conditions	13	11	17	41
Alcohol and/or Other Drugs	10	8	9	27
Young Drivers—15-20	4	12	10	26
Distracted Drivers	9	8	9	26
Intersection Crashes				
Unsignalized	7	9	5	21
Signalized	1	1	0	2
TOTAL for both Unsignalized and Signalized	8	10	5	23
Horizontal Curves	8	6	8	22
Commercial Motor Vehicles	3	10	7	20
Unlicensed Drivers	3	5	2	10
Older Drivers—76 or Older	3	4	3	10
Collision with Tree	5	0	4	9
Motorcyclists Killed	2	3	1	6
Older Drivers—65-75	1	2	3	6
Head-On Crashes				
Head-On - Non-Interstate	1	1	2	4
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	1	1	2	4
Pedestrians Killed	0	1	1	2
Collision with Utility Pole	1	1	0	2
Work Zones	0	1	0	1
Bicyclists Killed	0	1	0	1
School Buses / School Bus Signal	0	0	0	0

Seriously Injured Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	115	120	112	347
Aggressive Driving				
Following too close	19	16	15	50
Too fast for conditions	60	73	59	192
Speed exceeded limit	7	10	6	23
TOTAL for 3 conditions	86	99	80	265
Young Drivers—15-20	55	80	55	190
Unrestrained Occupants	57	71	61	189
Horizontal Curves	56	60	47	163
Distracted Drivers	50	49	53	152
Intersection Crashes				
Unsignalized	47	45	31	123
Signalized	7	1	5	13
TOTAL for both Unsignalized and Signalized	54	46	36	136
Alcohol and/or Other Drugs	28	35	25	88
Commercial Motor Vehicles	30	28	24	82
Older Drivers—65-75	21	26	23	70
Motorcyclists Seriously Injured	18	15	26	59
Older Drivers—76 or Older	22	13	13	48
Unlicensed Drivers	12	22	11	45
Collision with Tree	13	17	15	45
Head-On Crashes				
Head-On - Non-Interstate	12	17	9	38
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	12	17	9	38
Collision with Utility Pole	6	9	6	21
Pedestrians Seriously Injured	3	2	6	11
Bicyclists Seriously Injured	1	5	3	9
Work Zones	6	2	0	8
School Buses / School Bus Signal	2	4	1	7

Appendix B

Troop C

Total Fatalities and Serious Injuries by Focus Area

2009 - 2011

Troop C vs. State

Total Fatalities			
Year	Troop C	State	%
2009	222	878	25.28%
2010	228	821	27.77%
2011	217	786	27.61%
Total	667	2,485	26.84%

Total Serious Injuries			
Year	Troop C	State	%
2009	1,810	6,540	27.68%
2010	1,763	6,096	28.92%
2011	1,495	5,643	26.49%
Total	5,068	18,279	27.73%

Troop C

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	100	101	108	309
Run-Off-Road Crashes	92	107	110	309
Aggressive Driving				
Following too close	4	5	3	12
Too fast for conditions	51	48	47	146
Speed exceeded limit	50	49	51	150
TOTAL for 3 conditions	105	102	101	308
Horizontal Curves	85	73	79	237
Alcohol and/or Other Drugs	66	71	67	204
Distracted Drivers	44	50	39	133
Young Drivers—15-20	45	40	43	128
Intersection Crashes				
Unsignalized	16	26	11	53
Signalized	27	17	21	65
TOTAL for both Unsignalized and Signalized	43	43	32	118
Collision with Tree	36	28	46	110
Unlicensed Drivers	31	31	41	103
Head-On Crashes				
Head-On - Non-Interstate	34	24	29	87
Head-On - Interstates	3	4	3	10
TOTAL for Non-Interstate and Interstate	37	28	32	97
Pedestrians Killed	30	23	30	83
Motorcyclists Killed	20	34	26	80
Commercial Motor Vehicles	22	23	28	73
Older Drivers—65-75	18	28	14	60
Older Drivers—76 or Older	18	12	15	45
Collision with Utility Pole	5	8	12	25
Work Zones	2	8	2	12
School Buses / School Bus Signal	1	3	0	4
Bicyclists Killed	0	1	0	1

Seriously Injured Involving

Description	2009	2010	2011	Total
Aggressive Driving				
Following too close	119	145	73	337
Too fast for conditions	403	420	349	1,172
Speed exceeded limit	132	136	130	398
TOTAL for 3 conditions	654	701	552	1,907
Run-Off-Road Crashes	678	651	555	1,884
Intersection Crashes				
Unsignalized	321	253	212	786
Signalized	286	275	217	778
TOTAL for both Unsignalized and Signalized	607	528	429	1,564
Horizontal Curves	496	471	391	1,358
Young Drivers—15-20	453	426	332	1,211
Distracted Drivers	431	391	340	1,162
Unrestrained Occupants	376	406	310	1,092
Alcohol and/or Other Drugs	297	239	243	779
Collision with Tree	211	168	114	493
Motorcyclists Seriously Injured	177	162	144	483
Head-On Crashes				
Head-On - Non-Interstate	160	147	139	446
Head-On - Interstates	2	9	5	16
TOTAL for Non-Interstate and Interstate	162	156	144	462
Unlicensed Drivers	171	168	118	457
Older Drivers—65-75	145	159	126	430
Commercial Motor Vehicles	151	150	100	401
Pedestrians Seriously Injured	117	116	145	378
Older Drivers—76 or Older	105	84	85	274
Collision with Utility Pole	68	74	55	197
Work Zones	25	46	24	95
Bicyclists Seriously Injured	31	23	24	78
School Buses / School Bus Signal	17	12	4	33

Appendix B

Troop D

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Troop D vs. State

Total Fatalities			
Year	Troop D	State	%
2009	150	878	17.08%
2010	155	821	18.88%
2011	135	786	17.18%
Total	440	2,485	17.71%

Total Serious Injuries			
Year	Troop D	State	%
2009	1,218	6,540	18.62%
2010	1,100	6,096	18.04%
2011	969	5,643	17.17%
Total	3,287	18,279	17.98%

Troop D

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	72	77	63	212
Run-Off-Road Crashes	82	66	63	211
Aggressive Driving				
Following too close	2	4	4	10
Too fast for conditions	43	37	37	117
Speed exceeded limit	15	29	20	64
TOTAL for 3 conditions	60	70	61	191
Horizontal Curves	53	47	46	146
Alcohol and/or Other Drugs	49	47	42	138
Distracted Drivers	44	52	35	131
Intersection Crashes				
Unsignalized	20	36	18	74
Signalized	9	11	6	26
TOTAL for both Unsignalized and Signalized	29	47	24	100
Collision with Tree	31	28	20	79
Unlicensed Drivers	22	24	28	74
Young Drivers—15-20	20	22	19	61
Head-On Crashes				
Head-On - Non-Interstate	21	19	17	57
Head-On - Interstates	0	2	1	3
TOTAL for Non-Interstate and Interstate	21	21	18	60
Commercial Motor Vehicles	18	14	26	58
Motorcyclists Killed	14	19	17	50
Older Drivers—76 or Older	9	21	15	45
Older Drivers—65-75	17	14	10	41
Pedestrians Killed	5	7	9	21
Collision with Utility Pole	0	9	6	15
Work Zones	1	2	2	5
Bicyclists Killed	1	2	0	3
School Buses / School Bus Signal	0	0	0	0

Seriously Injured Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	517	498	457	1,472
Aggressive Driving				
Following too close	60	62	54	176
Too fast for conditions	358	305	269	932
Speed exceeded limit	64	45	37	146
TOTAL for 3 conditions	482	412	360	1,254
Distracted Drivers	379	337	288	1,004
Horizontal Curves	342	311	294	947
Unrestrained Occupants	314	309	269	892
Intersection Crashes				
Unsignalized	240	248	186	674
Signalized	88	65	54	207
TOTAL for both Unsignalized and Signalized	328	313	240	881
Young Drivers—15-20	283	269	218	770
Alcohol and/or Other Drugs	227	160	164	551
Unlicensed Drivers	181	156	147	484
Collision with Tree	137	141	114	392
Motorcyclists Seriously Injured	133	114	145	392
Older Drivers—65-75	140	103	98	341
Commercial Motor Vehicles	114	92	94	300
Head-On Crashes				
Head-On - Non-Interstate	116	94	72	282
Head-On - Interstates	2	1	1	4
TOTAL for Non-Interstate and Interstate	118	95	73	286
Older Drivers—76 or Older	79	77	50	206
Collision with Utility Pole	41	29	24	94
Pedestrians Seriously Injured	25	28	26	79
Bicyclists Seriously Injured	11	12	13	36
Work Zones	6	12	4	22
School Buses / School Bus Signal	2	4	4	10

Appendix B

Troop E

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Troop E vs. State

Total Fatalities			
Year	Troop E	State	%
2009	85	878	9.68%
2010	79	821	9.62%
2011	66	786	8.40%
Total	230	2,485	9.26%

Total Serious Injuries			
Year	Troop E	State	%
2009	431	6,540	6.59%
2010	402	6,096	6.59%
2011	369	5,643	6.54%
Total	1,202	18,279	6.58%

Troop E

Fatalities Involving				
Description	2009	2010	2011	Total
Unrestrained Occupants	47	45	34	126
Run-Off-Road Crashes	43	43	40	126
Aggressive Driving				
Following too close	0	3	4	7
Too fast for conditions	27	20	16	63
Speed exceeded limit	6	4	5	15
TOTAL for 3 conditions	33	27	25	85
Alcohol and/or Other Drugs	31	22	20	73
Horizontal Curves	23	25	18	66
Collision with Tree	13	13	13	39
Young Drivers—15-20	9	8	13	30
Commercial Motor Vehicles	14	8	8	30
Intersection Crashes				
Unsignalized	10	11	8	29
Signalized	0	0	0	0
TOTAL for both Unsignalized and Signalized	10	11	8	29
Unlicensed Drivers	9	13	6	28
Distracted Drivers	8	9	9	26
Head-On Crashes				
Head-On - Non-Interstate	11	6	7	24
Head-On - Interstates	0	1	1	2
TOTAL for Non-Interstate and Interstate	11	7	8	26
Older Drivers—65-75	9	5	7	21
Older Drivers—76 or Older	4	9	3	16
Pedestrians Killed	9	3	3	15
Motorcyclists Killed	3	6	3	12
Collision with Utility Pole	5	4	3	12
Work Zones	1	0	3	4
Bicyclists Killed	0	0	0	0
School Buses / School Bus Signal	0	0	0	0

Seriously Injured Involving				
Description	2009	2010	2011	Total
Run-Off-Road Crashes	203	200	179	582
Unrestrained Occupants	167	167	144	478
Aggressive Driving				
Following too close	24	24	24	72
Too fast for conditions	119	97	92	308
Speed exceeded limit	21	13	18	52
TOTAL for 3 conditions	164	134	134	432
Horizontal Curves	122	102	89	313
Young Drivers—15-20	95	88	72	255
Alcohol and/or Other Drugs	82	83	80	245
Intersection Crashes				
Unsignalized	85	64	61	210
Signalized	14	9	8	31
TOTAL for both Unsignalized and Signalized	99	73	69	241
Distracted Drivers	66	77	68	211
Unlicensed Drivers	50	50	52	152
Collision with Tree	50	48	38	136
Older Drivers—65-75	46	48	27	121
Motorcyclists Seriously Injured	33	34	45	112
Head-On Crashes				
Head-On - Non-Interstate	55	34	28	117
Head-On - Interstates	2	3	1	6
TOTAL for Non-Interstate and Interstate	57	37	29	123
Commercial Motor Vehicles	29	31	34	94
Older Drivers—76 or Older	23	24	9	56
Collision with Utility Pole	10	12	13	35
Pedestrians Seriously Injured	10	13	11	34
Bicyclists Seriously Injured	4	2	5	11
Work Zones	3	3	3	9
School Buses / School Bus Signal	1	2	2	5

Appendix B

Troop F

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Troop F vs. State

Total Fatalities			
Year	Troop F	State	%
2009	98	878	11.16%
2010	71	821	8.65%
2011	72	786	9.16%
Total	241	2,485	9.70%

Total Serious Injuries			
Year	Troop F	State	%
2009	547	6,540	8.36%
2010	514	6,096	8.43%
2011	503	5,643	8.91%
Total	1,564	18,279	8.56%

Troop F

Fatalities Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	57	35	41	133
Unrestrained Occupants	53	35	40	128
Horizontal Curves	48	31	35	114
Aggressive Driving				
Following too close	3	3	1	7
Too fast for conditions	21	21	16	58
Speed exceeded limit	12	15	15	42
TOTAL for 3 conditions	36	39	32	107
Alcohol and/or Other Drugs	28	29	32	89
Collision with Tree	25	17	15	57
Distracted Drivers	15	14	23	52
Head-On Crashes				
Head-On - Non-Interstate	19	16	13	48
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	19	16	13	48
Young Drivers—15-20	22	11	10	43
Unlicensed Drivers	10	10	15	35
Older Drivers—65-75	10	8	10	28
Commercial Motor Vehicles	10	7	9	26
Intersection Crashes				
Unsignalized	6	9	7	22
Signalized	3	0	0	3
TOTAL for both Unsignalized and Signalized	9	9	7	25
Motorcyclists Killed	10	4	6	20
Older Drivers—76 or Older	9	6	3	18
Pedestrians Killed	2	5	5	12
Collision with Utility Pole	2	1	2	5
School Buses / School Bus Signal	1	0	1	2
Work Zones	1	0	0	1
Bicyclists Killed	0	0	0	0

Seriously Injured Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	247	222	210	679
Aggressive Driving				
Following too close	30	49	28	107
Too fast for conditions	135	144	134	413
Speed exceeded limit	33	29	21	83
TOTAL for 3 conditions	198	222	183	603
Horizontal Curves	187	186	180	553
Unrestrained Occupants	157	144	133	434
Intersection Crashes				
Unsignalized	91	79	87	257
Signalized	45	64	58	167
TOTAL for both Unsignalized and Signalized	136	143	145	424
Young Drivers—15-20	137	109	98	344
Distracted Drivers	118	98	108	324
Alcohol and/or Other Drugs	107	106	76	289
Head-On Crashes				
Head-On - Non-Interstate	71	55	71	197
Head-On - Interstates	2	0	0	2
TOTAL for Non-Interstate and Interstate	73	55	71	199
Older Drivers—65-75	62	59	60	181
Collision with Tree	65	54	51	170
Motorcyclists Seriously Injured	44	43	61	148
Unlicensed Drivers	51	46	45	142
Commercial Motor Vehicles	55	38	32	125
Older Drivers—76 or Older	32	31	37	100
Pedestrians Seriously Injured	18	18	14	50
Collision with Utility Pole	21	9	14	44
Work Zones	6	5	6	17
School Buses / School Bus Signal	3	6	2	11
Bicyclists Seriously Injured	5	1	4	10

Appendix B

Troop G

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Troop G vs. State

Total Fatalities			
Year	Troop G	State	%
2009	44	878	5.01%
2010	34	821	4.14%
2011	36	786	4.58%
Total	114	2,485	4.59%

Total Serious Injuries			
Year	Troop G	State	%
2009	281	6,540	4.30%
2010	276	6,096	4.53%
2011	260	5,643	4.61%
Total	817	18,279	4.47%

Troop G

Fatalities Involving

Description	2009	2010	2011	Total
Horizontal Curves	24	23	17	64
Run-Off-Road Crashes	14	21	21	56
Unrestrained Occupants	18	15	18	51
Aggressive Driving				
Following too close	0	2	1	3
Too fast for conditions	16	11	9	36
Speed exceeded limit	3	5	3	11
TOTAL for 3 conditions	19	18	13	50
Alcohol and/or Other Drugs	14	6	4	24
Commercial Motor Vehicles	9	7	8	24
Head-On Crashes				
Head-On - Non-Interstate	14	6	3	23
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	14	6	3	23
Older Drivers—65-75	13	6	3	22
Distracted Drivers	2	11	8	21
Collision with Tree	4	7	8	19
Young Drivers—15-20	6	5	5	16
Older Drivers—76 or Older	5	2	7	14
Unlicensed Drivers	6	1	2	9
Intersection Crashes				
Unsignalized	2	2	3	7
Signalized	1	0	0	1
TOTAL for both Unsignalized and Signalized	3	2	3	8
Motorcyclists Killed	2	4	2	8
Pedestrians Killed	3	1	2	6
Work Zones	3	0	0	3
Collision with Utility Pole	0	0	0	0
School Buses / School Bus Signal	0	0	0	0
Bicyclists Killed	0	0	0	0

Seriously Injured Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	149	171	144	464
Aggressive Driving				
Following too close	6	11	3	20
Too fast for conditions	114	123	72	309
Speed exceeded limit	8	12	22	42
TOTAL for 3 conditions	128	146	97	371
Horizontal Curves	123	122	114	359
Unrestrained Occupants	112	92	109	313
Young Drivers—15-20	74	75	55	204
Collision with Tree	69	61	63	193
Alcohol and/or Other Drugs	59	65	63	187
Distracted Drivers	56	45	43	144
Intersection Crashes				
Unsignalized	37	34	33	104
Signalized	0	10	6	16
TOTAL for both Unsignalized and Signalized	37	44	39	120
Unlicensed Drivers	38	33	24	95
Older Drivers—65-75	35	22	21	78
Motorcyclists Seriously Injured	22	24	16	62
Head-On Crashes				
Head-On - Non-Interstate	29	12	20	61
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	29	12	20	61
Commercial Motor Vehicles	22	17	19	58
Older Drivers—76 or Older	11	10	13	34
Pedestrians Seriously Injured	2	2	5	9
Collision with Utility Pole	3	3	3	9
Bicyclists Seriously Injured	2	1	0	3
Work Zones	2	0	0	2
School Buses / School Bus Signal	0	1	0	1

Appendix B

Troop H

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Troop H vs. State

Total Fatalities			
Year	Troop H	State	%
2009	47	878	5.35%
2010	28	821	3.41%
2011	42	786	5.34%
Total	117	2,485	4.71%

Total Serious Injuries			
Year	Troop H	State	%
2009	403	6,540	6.16%
2010	327	6,096	5.36%
2011	335	5,643	5.94%
Total	1,065	18,279	5.83%

Troop H

Fatalities Involving

Description	2009	2010	2011	Total
Unrestrained Occupants	25	11	28	64
Run-Off-Road Crashes	21	11	20	52
Aggressive Driving				
Following too close	1	2	1	4
Too fast for conditions	15	8	8	31
Speed exceeded limit	2	1	6	9
TOTAL for 3 conditions	18	11	15	44
Alcohol and/or Other Drugs	14	6	15	35
Horizontal Curves	8	3	12	23
Intersection Crashes				
Unsignalized	7	4	7	18
Signalized	1	2	0	3
TOTAL for both Unsignalized and Signalized	8	6	7	21
Commercial Motor Vehicles	6	7	8	21
Young Drivers—15-20	10	1	8	19
Unlicensed Drivers	8	2	7	17
Head-On Crashes				
Head-On - Non-Interstate	7	2	5	14
Head-On - Interstates	0	1	1	2
TOTAL for Non-Interstate and Interstate	7	3	6	16
Older Drivers—65-75	4	3	9	16
Distracted Drivers	3	3	6	12
Older Drivers—76 or Older	4	5	2	11
Collision with Tree	4	2	3	9
Motorcyclists Killed	5	1	3	9
Pedestrians Killed	1	4	0	5
Work Zones	0	2	2	4
Collision with Utility Pole	2	0	1	3
School Buses / School Bus Signal	0	1	0	1
Bicyclists Killed	0	0	0	0

Seriously Injured Involving

Description	2009	2010	2011	Total
Run-Off-Road Crashes	161	125	111	397
Aggressive Driving				
Following too close	41	33	43	117
Too fast for conditions	71	78	48	197
Speed exceeded limit	33	18	20	71
TOTAL for 3 conditions	145	129	111	385
Intersection Crashes				
Unsignalized	86	66	84	236
Signalized	45	40	55	140
TOTAL for both Unsignalized and Signalized	131	106	139	376
Unrestrained Occupants	127	92	105	324
Young Drivers—15-20	118	94	95	307
Distracted Drivers	76	68	62	206
Alcohol and/or Other Drugs	84	51	46	181
Horizontal Curves	67	53	52	172
Unlicensed Drivers	63	28	37	128
Commercial Motor Vehicles	25	36	37	98
Motorcyclists Seriously Injured	29	36	31	96
Older Drivers—65-75	34	27	29	90
Head-On Crashes				
Head-On - Non-Interstate	24	24	25	73
Head-On - Interstates	0	2	1	3
TOTAL for Non-Interstate and Interstate	24	26	26	76
Older Drivers—76 or Older	26	21	25	72
Collision with Tree	21	9	20	50
Collision with Utility Pole	25	8	10	43
Pedestrians Seriously Injured	15	11	10	36
Bicyclists Seriously Injured	7	4	5	16
Work Zones	2	4	5	11
School Buses / School Bus Signal	4	2	1	7

Appendix B

Troop I

Total Fatalities and Serious Injuries by Focus Area 2009 - 2011

Troop I vs. State

Total Fatalities			
Year	Troop I	State	%
2009	30	878	3.42%
2010	32	821	3.90%
2011	43	786	5.47%
Total	105	2,485	4.23%

Total Serious Injuries			
Year	Troop I	State	%
2009	388	6,540	5.93%
2010	281	6,096	4.61%
2011	269	5,643	4.77%
Total	938	18,279	5.13%

Troop I

Fatalities Involving				
Description	2009	2010	2011	Total
Unrestrained Occupants	13	18	20	51
Run-Off-Road Crashes	9	17	23	49
Horizontal Curves	12	14	19	45
Aggressive Driving				
Following too close	0	0	0	0
Too fast for conditions	5	7	13	25
Speed exceeded limit	3	3	9	15
TOTAL for 3 conditions	8	10	22	40
Alcohol and/or Other Drugs	9	13	8	30
Head-On Crashes				
Head-On - Non-Interstate	9	7	13	29
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	9	7	13	29
Collision with Tree	4	10	10	24
Young Drivers—15-20	8	5	10	23
Distracted Drivers	2	6	12	20
Older Drivers—65-75	8	3	3	14
Commercial Motor Vehicles	2	5	7	14
Intersection Crashes				
Unsignalized	0	5	4	9
Signalized	0	0	0	0
TOTAL for both Unsignalized and Signalized	0	5	4	9
Unlicensed Drivers	3	3	3	9
Pedestrians Killed	3	3	3	9
Motorcyclists Killed	6	1	1	8
Older Drivers—76 or Older	1	2	2	5
Collision with Utility Pole	0	0	1	1
School Buses / School Bus Signal	0	1	0	1
Work Zones	0	0	0	0
Bicyclists Killed	0	0	0	0

Seriously Injured Involving				
Description	2009	2010	2011	Total
Run-Off-Road Crashes	223	181	154	558
Horizontal Curves	150	109	104	363
Aggressive Driving				
Following too close	14	6	8	28
Too fast for conditions	120	98	75	293
Speed exceeded limit	24	12	18	54
TOTAL for 3 conditions	158	116	101	375
Unrestrained Occupants	112	90	79	281
Young Drivers—15-20	109	60	66	235
Distracted Drivers	90	63	76	229
Alcohol and/or Other Drugs	58	46	50	154
Collision with Tree	57	52	38	147
Intersection Crashes				
Unsignalized	31	34	20	85
Signalized	10	3	11	24
TOTAL for both Unsignalized and Signalized	41	37	31	109
Motorcyclists Seriously Injured	38	32	26	96
Commercial Motor Vehicles	29	23	34	86
Older Drivers—65-75	43	24	18	85
Unlicensed Drivers	31	30	16	77
Head-On Crashes				
Head-On - Non-Interstate	33	16	24	73
Head-On - Interstates	0	0	0	0
TOTAL for Non-Interstate and Interstate	33	16	24	73
Older Drivers—76 or Older	13	7	6	26
Collision with Utility Pole	11	7	2	20
Pedestrians Seriously Injured	3	8	7	18
Work Zones	8	3	2	13
Bicyclists Seriously Injured	0	1	3	4
School Buses / School Bus Signal	1	0	0	1

Appendix C

Total Fatalities by Age and Focus Area

2009 -2011

Unrestrained Occupant

Age	Fatalities	Percent of Total Fatalities
15-20	201	16.79%
21-25	179	14.95%
26-30	126	10.53%
*>=66	114	9.52%
41-45	100	8.35%
31-35	99	8.27%
36-40	86	7.18%
46-50	84	7.02%
56-60	77	6.43%
51-55	73	6.10%
61-65	36	3.01%
9-14	11	0.92%
7	3	0.25%
5	2	0.17%
8	2	0.17%
1	1	0.08%
2	1	0.08%
3	1	0.08%
6	1	0.08%
**<1	0	0.00%
4	0	0.00%
Unknown	0	0.00%
TOTAL	1,197	100.00%

Run-Off Road Involved

Age	Fatalities	Percent of Total Fatalities
15-20	177	14.86%
21-25	152	12.76%
*>=66	135	11.34%
26-30	122	10.24%
46-50	103	8.65%
41-45	100	8.40%
51-55	91	7.64%
36-40	85	7.14%
56-60	80	6.72%
31-35	73	6.13%
61-65	38	3.19%
9-14	19	1.60%
3	4	0.34%
1	3	0.25%
6	2	0.17%
**<1	1	0.08%
2	1	0.08%
4	1	0.08%
5	1	0.08%
7	1	0.08%
8	1	0.08%
Unknown	1	0.08%
TOTAL	1,191	100.00%

Too Fast for Condition Involved

Age	Fatalities	Percent of Total Fatalities
15-20	113	18.90%
21-25	85	14.21%
26-30	69	11.54%
*>=66	59	9.87%
41-45	49	8.19%
46-50	46	7.69%
31-35	41	6.86%
51-55	39	6.52%
36-40	37	6.19%
56-60	28	4.68%
61-65	20	3.34%
9-14	10	1.67%
2	1	0.17%
5	1	0.17%
**<1	0	0.00%
1	0	0.00%
3	0	0.00%
4	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	598	100.00%

* Greater than or equal to 66

** Less than 1

Speed Exceeded Limit Involved

Age	Fatalities	Percent of Total Fatalities
21-25	89	20.32%
15-20	86	19.63%
26-30	55	12.56%
31-35	38	8.68%
41-45	34	7.76%
36-40	32	7.31%
46-50	27	6.16%
51-55	22	5.02%
56-60	17	3.88%
*>=66	14	3.20%
61-65	8	1.83%
9-14	6	1.37%
3	4	0.91%
1	2	0.46%
2	1	0.23%
4	1	0.23%
7	1	0.23%
**<1	1	0.23%
5	0	0.00%
6	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	438	100.00%

Appendix C

Total Fatalities by Age and Focus Area

2009 -2011

Following Too Close Involved

Age	Fatalities	Percent of Total Fatalities
*>=66	12	21.43%
15-20	8	14.29%
41-45	6	10.71%
56-60	6	10.71%
21-25	5	8.93%
51-55	4	7.14%
26-30	3	5.36%
31-35	3	5.36%
36-40	3	5.36%
46-50	3	5.36%
61-65	2	3.57%
4	1	1.79%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
9-14	0	0.00%
Unknown	0	0.00%
TOTAL	56	100.00%

Horizontal Curve Involved

Age	Fatalities	Percent of Total Fatalities
15-20	140	16.97%
21-25	107	12.97%
*>=66	100	12.12%
46-50	76	9.21%
26-30	72	8.73%
51-55	71	8.61%
41-45	56	6.79%
36-40	55	6.67%
31-35	52	6.30%
56-60	48	5.82%
61-65	24	2.91%
9-14	16	1.94%
3	3	0.36%
7	2	0.24%
4	1	0.12%
6	1	0.12%
Unknown	1	0.12%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
5	0	0.00%
8	0	0.00%
TOTAL	825	100.00%

Alcohol & Other Drug Involved

Age	Fatalities	Percent of Total Fatalities
21-25	120	15.89%
15-20	98	12.98%
26-30	83	10.99%
31-35	74	9.80%
46-50	74	9.80%
41-45	71	9.40%
36-40	68	9.01%
51-55	64	8.48%
56-60	44	5.83%
*>=66	29	3.84%
61-65	15	1.99%
9-14	8	1.06%
3	2	0.26%
Unknown	2	0.26%
2	1	0.13%
5	1	0.13%
8	1	0.13%
**<1	0	0.00%
1	0	0.00%
4	0	0.00%
6	0	0.00%
7	0	0.00%
TOTAL	755	100.00%

* Greater than or equal to 66

** Less than 1

Distracted Driver Involved

Age	Fatalities	Percent of Total Fatalities
*>=66	86	17.27%
15-20	65	13.05%
21-25	50	10.04%
26-30	46	9.24%
41-45	42	8.43%
51-55	40	8.03%
56-60	39	7.83%
46-50	37	7.43%
61-65	30	6.02%
36-40	23	4.62%
31-35	19	3.82%
9-14	5	1.00%
5	3	0.60%
6	3	0.60%
1	2	0.40%
2	2	0.40%
3	2	0.40%
8	2	0.40%
4	1	0.20%
7	1	0.20%
**<1	0	0.00%
Unknown	0	0.00%
TOTAL	498	100.00%

Appendix C

Total Fatalities by Age and Focus Area

2009 -2011

Unsignalized Intersection

Age	Fatalities	Percent of Total Fatalities
*>=66	91	30.95%
15-20	36	12.24%
21-25	26	8.84%
51-55	21	7.14%
26-30	24	8.16%
41-45	19	6.46%
36-40	14	4.76%
56-60	16	5.44%
46-50	15	5.10%
31-35	11	3.74%
61-65	11	3.74%
3	1	0.34%
7	2	0.68%
9-14	2	0.68%
2	1	0.34%
5	1	0.34%
6	1	0.34%
8	1	0.34%
**<1	1	0.34%
1	0	0.00%
4	0	0.00%
Unknown	0	0.00%
TOTAL	294	100.00%

Signalized Intersection Involved

Age	Fatalities	Percent of Total Fatalities
*>=66	36	26.87%
21-25	21	15.67%
26-30	12	8.96%
46-50	10	7.46%
36-40	9	6.72%
51-55	9	6.72%
31-35	9	6.72%
41-45	9	6.72%
61-65	8	5.97%
15-20	7	5.22%
56-60	3	2.24%
9-14	0	0.00%
Unknown	1	0.75%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
TOTAL	134	100.00%

Collision with Tree Involved

Age	Fatalities	Percent of Total Fatalities
15-20	69	17.38%
21-25	56	14.11%
*>=66	54	13.60%
46-50	37	9.32%
56-60	32	8.06%
51-55	30	7.56%
26-30	28	7.05%
36-40	27	6.80%
41-45	23	5.79%
31-35	21	5.29%
61-65	10	2.52%
9-14	5	1.26%
1	1	0.25%
3	1	0.25%
4	1	0.25%
6	1	0.25%
7	1	0.25%
**<1	0	0.00%
2	0	0.00%
5	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	397	100.00%

* Greater than or equal to 66

** Less than 1

Unlicensed Driver Involved

Age	Fatalities	Percent of Total Fatalities
21-25	71	18.78%
26-30	50	13.23%
15-20	43	11.38%
41-45	41	10.85%
31-35	36	9.52%
36-40	31	8.20%
46-50	26	6.88%
51-55	18	4.76%
56-60	18	4.76%
*>=66	17	4.50%
61-65	11	2.91%
9-14	10	2.65%
3	3	0.79%
1	1	0.26%
4	1	0.26%
**<1	1	0.26%
2	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	378	100.00%

Appendix C

Total Fatalities by Age and Focus Area

2009 -2011

Head-On (Non Interstate)

Age	Fatalities	Percent of Total Fatalities
*>=66	63	18.21%
15-20	46	13.29%
41-45	31	8.96%
21-25	30	8.67%
46-50	29	8.38%
51-55	27	7.80%
26-30	25	7.23%
56-60	25	7.23%
61-65	24	6.94%
31-35	20	5.78%
36-40	18	5.20%
9-14	5	1.45%
2	2	0.58%
8	1	0.29%
**<1	0	0.00%
1	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
Unknown	0	0.00%
TOTAL	346	100.00%

Head-On (Interstate)

Age	Fatalities	Percent of Total Fatalities
31-35	6	28.57%
15-20	3	14.29%
26-30	3	14.29%
51-55	2	9.52%
61-65	2	9.52%
9-14	1	4.76%
*>=66	1	4.76%
21-25	1	4.76%
41-45	1	4.76%
46-50	1	4.76%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
36-40	0	0.00%
56-60	0	0.00%
Unknown	0	0.00%
TOTAL	21	100.00%

Commercial Motor Vehicle Involved

Age	Fatalities	Percent of Total Fatalities
*>=66	60	18.58%
15-20	49	15.17%
26-30	29	8.98%
46-50	28	8.67%
51-55	27	8.36%
21-25	25	7.74%
56-60	24	7.43%
41-45	20	6.19%
36-40	18	5.57%
61-65	17	5.26%
31-35	16	4.95%
9-14	4	1.24%
6	2	0.62%
1	1	0.31%
3	1	0.31%
8	1	0.31%
**<1	1	0.31%
2	0	0.00%
4	0	0.00%
5	0	0.00%
7	0	0.00%
Unknown	0	0.00%
TOTAL	323	100.00%

Motorcyclists

Age	Fatalities	Percent of Total Fatalities
51-55	37	14.34%
21-25	30	11.63%
41-45	27	10.47%
36-40	24	9.30%
56-60	24	9.30%
26-30	23	8.91%
46-50	23	8.91%
*>=66	17	6.59%
61-65	17	6.59%
15-20	16	6.20%
31-35	15	5.81%
9-14	5	1.94%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	258	100.00%

* Greater than or equal to 66

** Less than 1

Appendix C

Total Fatalities by Age and Focus Area

2009 -2011

Pedestrians

Age	Fatalities	Percent of Total Fatalities
*>=66	28	13.79%
46-50	23	11.33%
26-30	22	10.84%
51-55	18	8.87%
15-20	17	8.37%
36-40	16	7.88%
21-25	15	7.39%
41-45	15	7.39%
61-65	13	6.40%
31-35	8	3.94%
56-60	8	3.94%
9-14	6	2.96%
4	3	1.48%
5	3	1.48%
1	2	0.99%
2	2	0.99%
3	2	0.99%
6	1	0.49%
7	1	0.49%
**<1	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	203	100.00%

Utility Pole Involved

Age	Fatalities	Percent of Total Fatalities
15-20	16	19.75%
21-25	12	14.81%
26-30	11	13.58%
31-35	7	8.64%
46-50	6	7.41%
51-55	6	7.41%
*>=66	5	6.17%
41-45	5	6.17%
56-60	5	6.17%
36-40	3	3.70%
9-14	2	2.47%
61-65	2	2.47%
1	1	1.23%
**<1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
Unknown	0	0.00%
TOTAL	81	100.00%

Work Zone Involved

Age	Fatalities	Percent of Total Fatalities
51-55	7	17.50%
*>=66	6	15.00%
26-30	6	15.00%
31-35	5	12.50%
15-20	3	7.50%
41-45	3	7.50%
61-65	3	7.50%
36-40	2	5.00%
46-50	2	5.00%
56-60	2	5.00%
21-25	1	2.50%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
9-14	0	0.00%
Unknown	0	0.00%
TOTAL	40	100.00%

Bicyclists

Age	Fatalities	Percent of Total Fatalities
46-50	2	20.00%
7	1	10.00%
9-14	1	10.00%
15-20	1	10.00%
26-30	1	10.00%
31-35	1	10.00%
51-55	1	10.00%
56-60	1	10.00%
61-65	1	10.00%
**<1	0	0.00%
1	0	0.00%
2	0	0.00%
3	0	0.00%
4	0	0.00%
5	0	0.00%
6	0	0.00%
8	0	0.00%
21-25	0	0.00%
36-40	0	0.00%
41-45	0	0.00%
*>=66	0	0.00%
Unknown	0	0.00%
TOTAL	10	100.00%

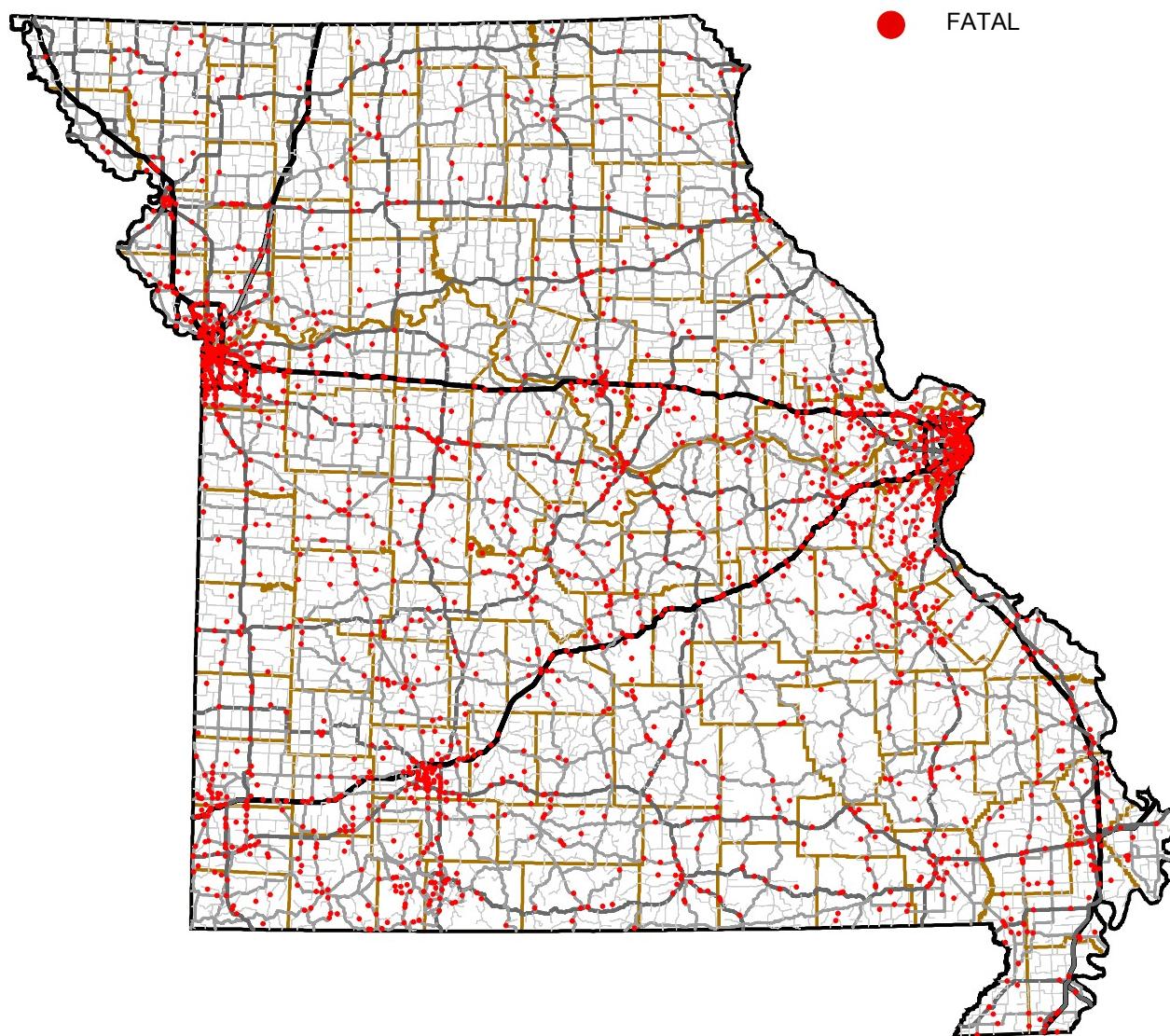
* Greater than or equal to 66

** Less than 1

Fatal Crashes

2009 – 2011

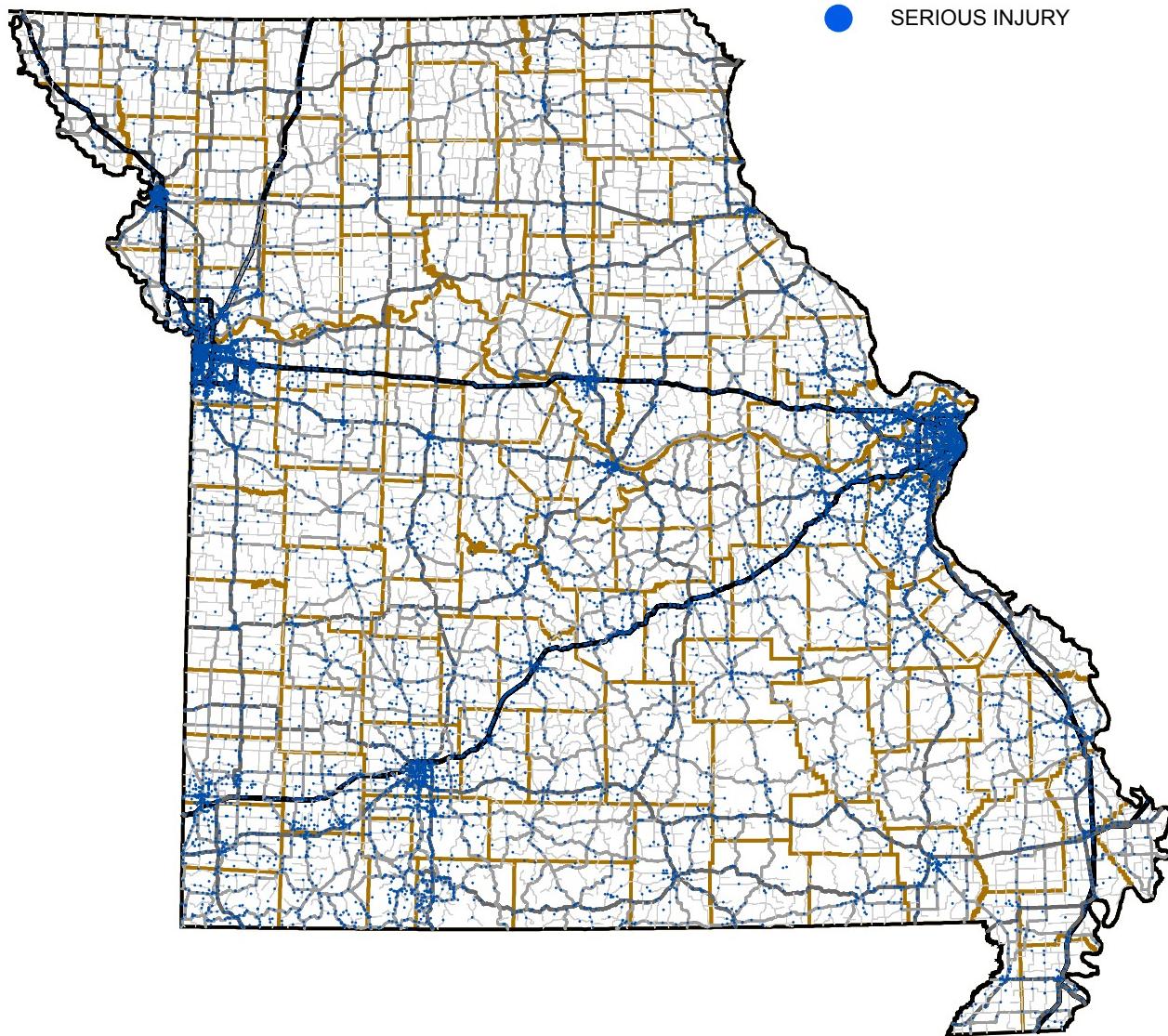
2,485 people were killed



Serious Injury Crashes

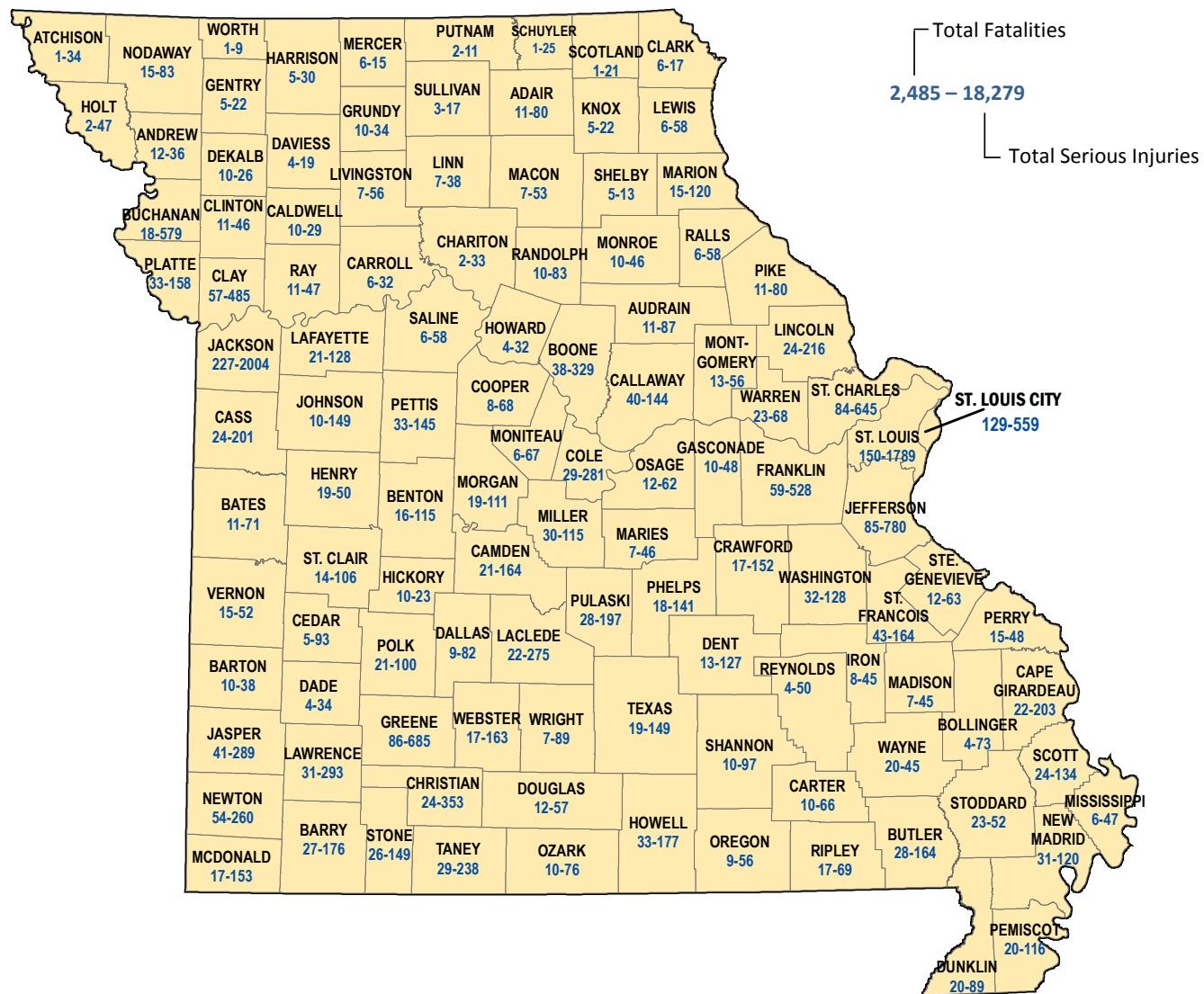
2009 – 2011

18,279 people received serious injuries in both fatal and serious injury crashes.



Fatalities and Serious Injuries by County

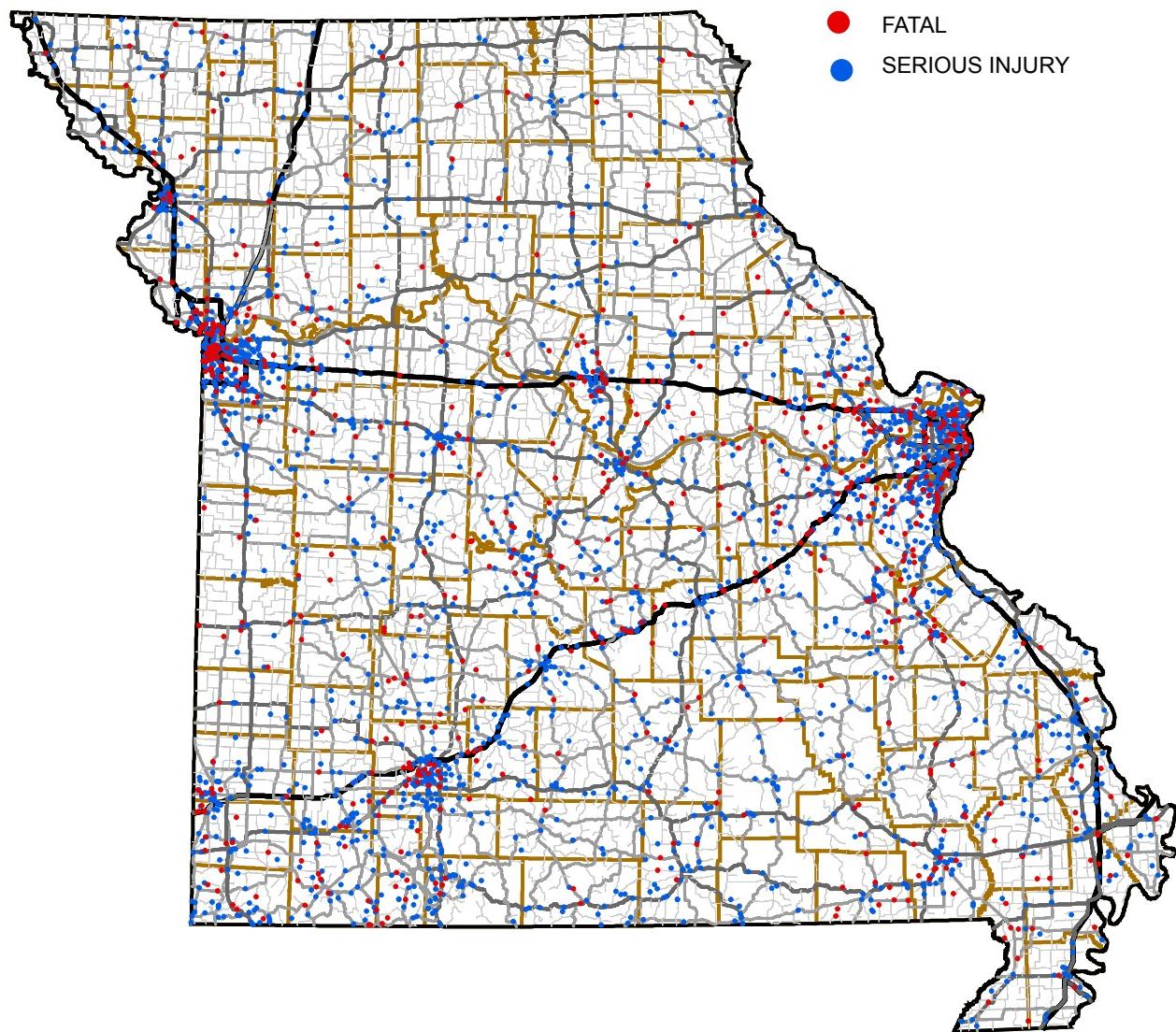
2009 - 2011



Substance-Impaired Involved Fatal and Serious Injury Crashes

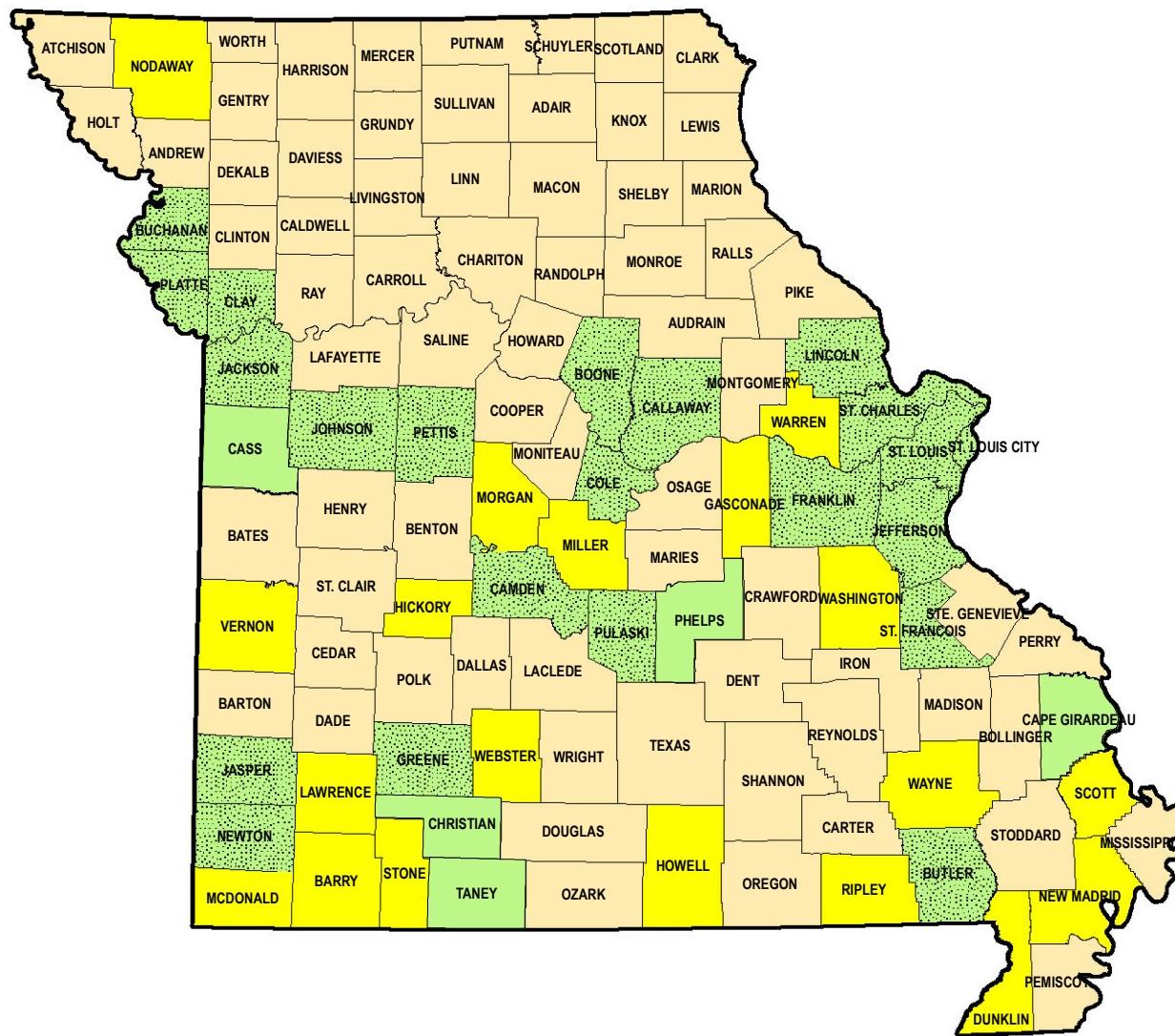
2009 – 2011

755 people were killed and 3,051 received serious injuries involving substance impairment.



Alcohol Related Fatalities / Top Counties with 75% of Fatalities

2009 – 2011

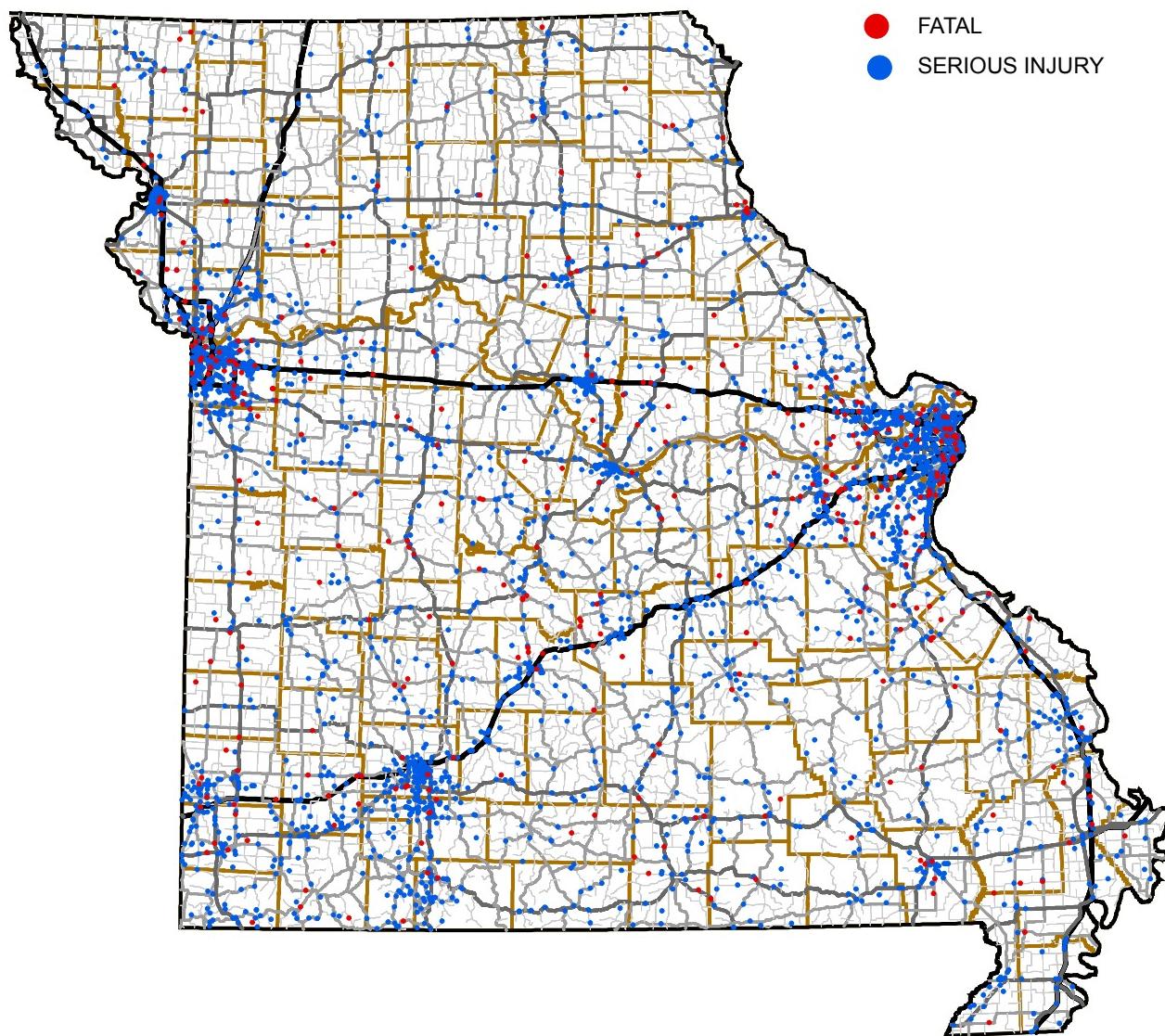


- [Solid Green Box] Top 75% of State's Population
- [Dotted Green Box] Top 75% of State's Population and Alcohol Fatalities
- [Yellow Box] Top 75% by Alcohol Fatalities

Young Driver Involved Fatal and Serious Injury Crashes / 15-20 Years of Age

2009 – 2011

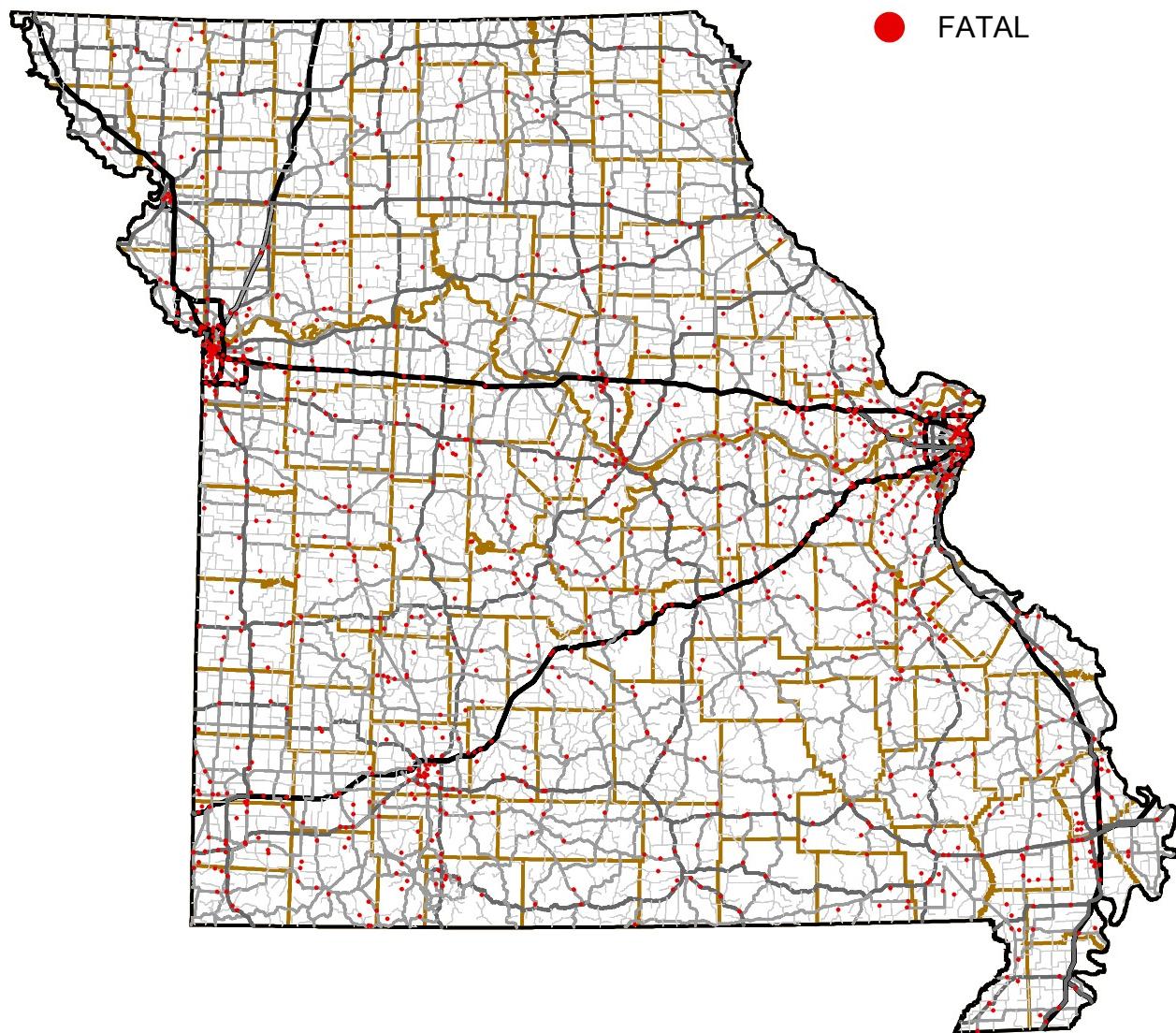
426 people were killed and 4,342 received serious injuries in crashes involving a young driver.



Unrestrained Vehicle Occupant Fatal Crashes

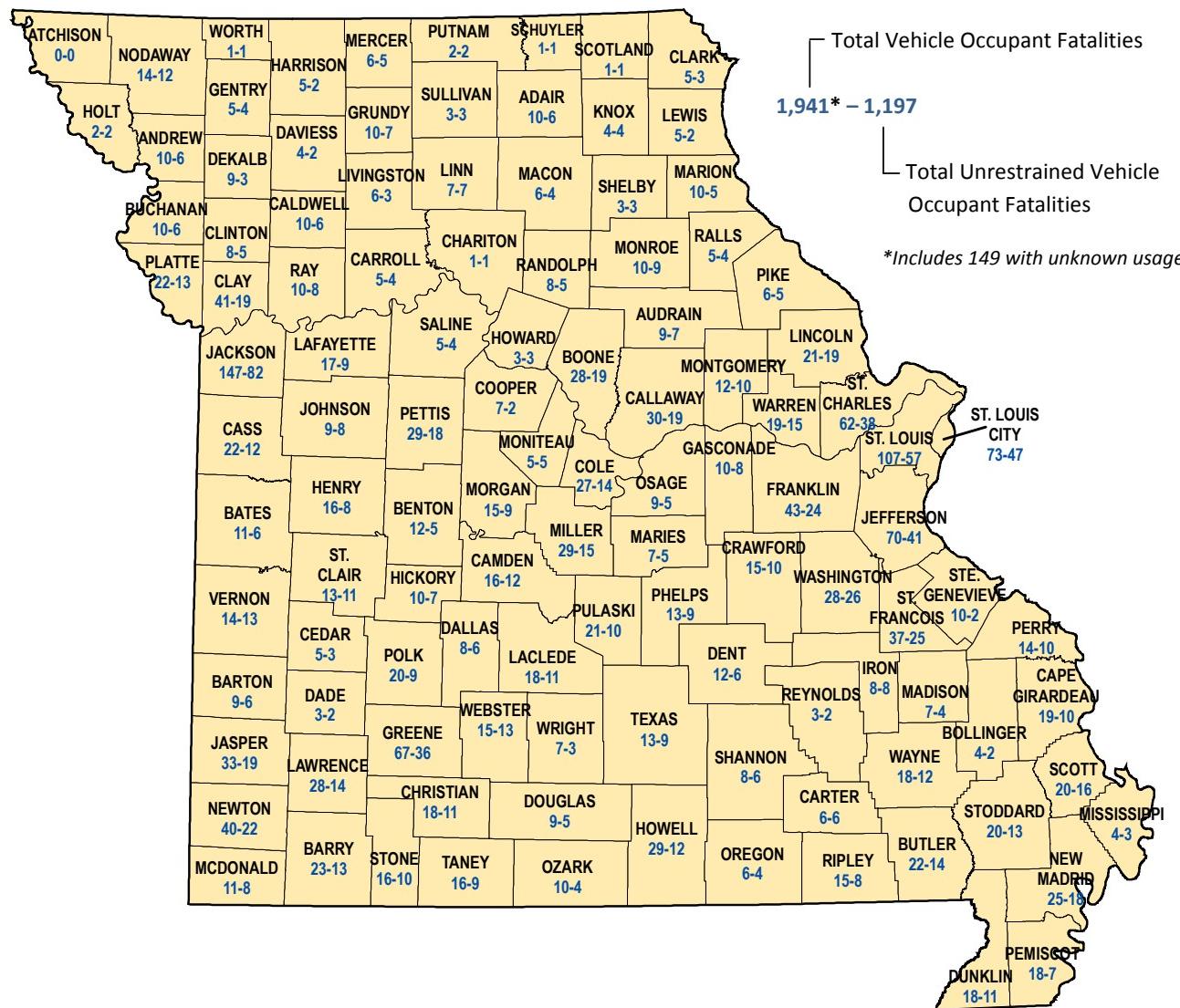
2009 – 2011

1,197 unrestrained vehicle occupants died.



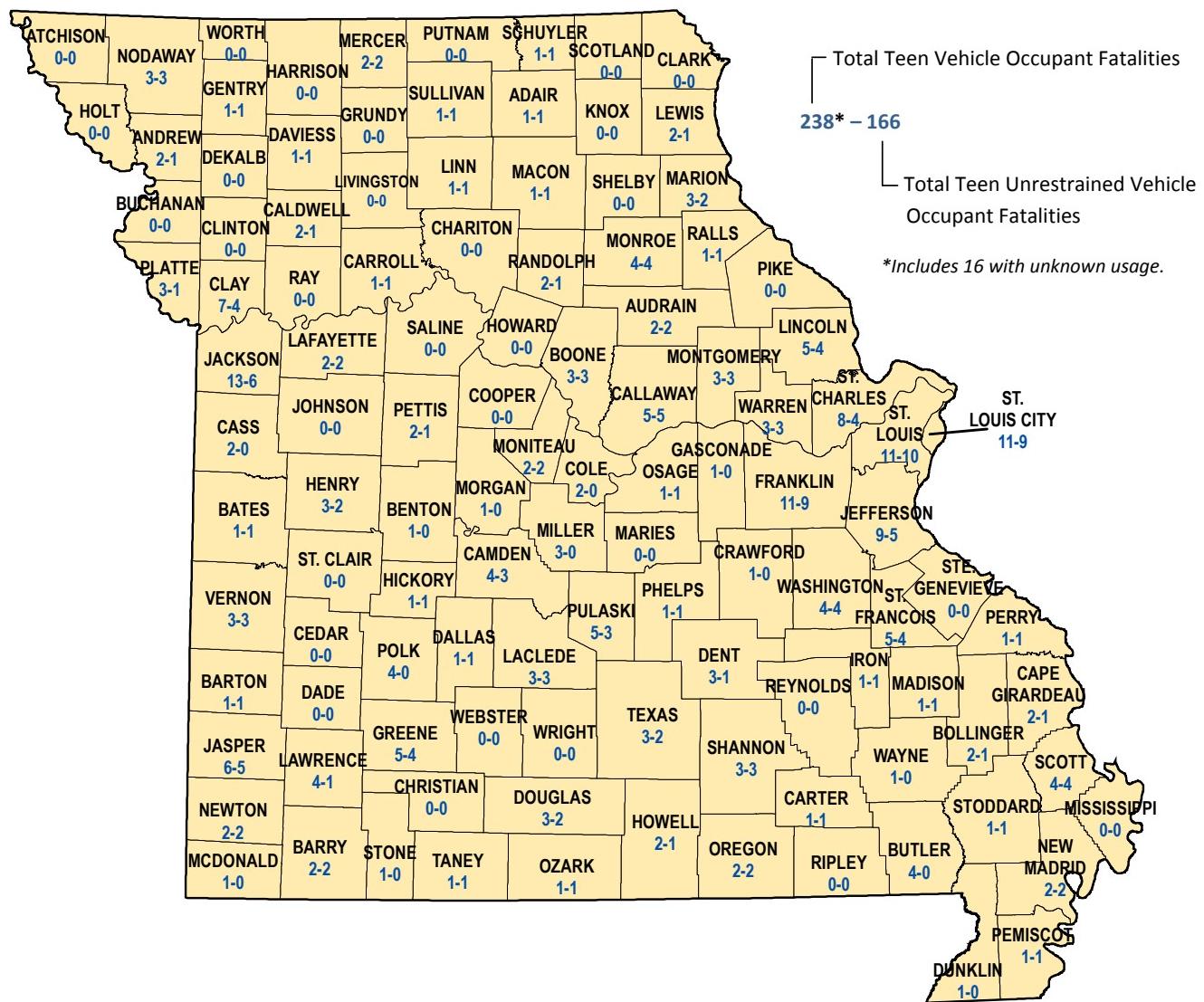
Vehicle Occupant Fatalities / Unrestrained Vehicle Occupant Fatalities

2009 – 2011



Teen Vehicle Occupant Fatalities / Teen Unrestrained Vehicle Occupant Fatalities 13-19 Years of Age

2009 – 2011



Appendix E

Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices.

Current Edition

www.nhtsa.gov

Highway Safety Manual. American Association of State Highway Transportation Officials.

Current Edition

www.transportation.org

Roadside Design Guide, American Association of State Highway and Transportation Officials.

Current Edition

www.transportation.org

Traffic Practices: A Guidebook for City and County Agencies, Missouri Coalition for Roadway Safety, Infrastructure

Subcommittee.

www.savemolives.com

Federal Highway Administration, Crash Modification Factors Clearinghouse

www.cmfclearinghouse.org

Low-Cost Treatments for Horizontal Curve Safety. Federal Highway Administration

<http://safety.fhwa.dot.gov>

Manual on Uniform Traffic Control Devices, Federal Highway Administration.

Current Edition

<http://mutcd.fhwa.dot.gov>

How to Develop a Pedestrian Safety Action Plan, FHWA SA-05-12, February 2006

www.narc.org/uploads/File/Transportation/Library/howto_bikeped.pdf

Highway Design Handbook for Older Drivers and Pedestrians, FHWA-Current edition

<http://www.tfhrc.gov/humanfac/01103/coverfront.htm>

NCHRP (National Cooperative Highway Research Program) Report 500 Series

Volume 1: A Guide for Addressing Aggressive-Driving Collisions

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v1.pdf

Volume 2: A Guide for Addressing Collisions Involving Unlicensed Drivers and Drivers with Suspended or Revoked Licenses

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v2.pdf

Volume 3: A Guide for Addressing Collisions with Trees in Hazardous Locations

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v3.pdf

Volume 4: A Guide for Addressing Head-On Collisions

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v4.pdf

Volume 5: A Guide for Addressing Unsignalized Intersection Collisions

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v5.pdf

Volume 6: A Guide for Addressing Run-Off-Road Collisions

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v6.pdf

Volume 7: A Guide for Reducing Collisions on Horizontal Curves

http://trb.org/publications/nchrp/nchrp_rpt_500v7.pdf

Volume 8: A Guide for Reducing Collisions Involving Utility Poles

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v8.pdf

Appendix E

Volume 9: A Guide for Reducing Collisions Involving Older Drivers

http://trb.org/publications/nchrp/nchrp_rpt_500v9.pdf

Volume 10: A Guide for Reducing Collisions Involving Pedestrians

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v10.pdf

Volume 11: A Guide for Increasing Seatbelt Use

http://trb.org/publications/nchrp/nchrp_rpt_500v11.pdf

Volume 12: A Guide for Reducing Collisions at Signalized Intersections

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v12.pdf

Volume 13: A Guide for Reducing Collisions Involving Heavy Trucks

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_500v13.pdf

Volume 18: A Guide for Reducing Collisions Involving Bicycles

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v18.pdf

Volume 19: A Guide for Reducing Collisions Involving Young Drivers

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v19.pdf

Volume 20: A Guide for Reducing Head-On Crashes on Freeways

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v20.pdf

Volume 21: Safety Data and Analysis in Developing Emphasis Area Plans

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v21.pdf

Volume 22: A Guide to Addressing Collisions Involving Motorcycles

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v22.pdf

Volume 23: A Guide for Reducing Speed-Related Crashes

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v23.pdf





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